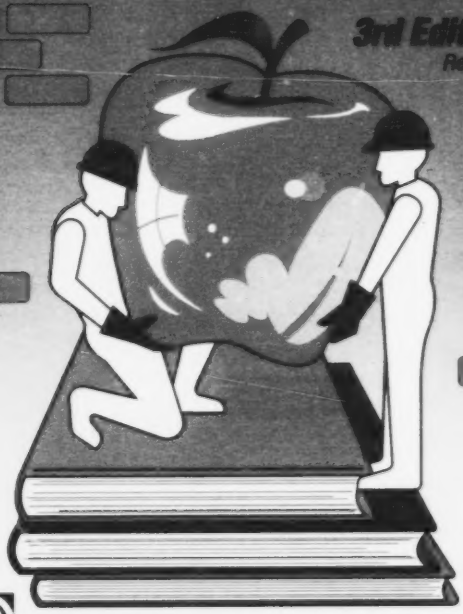
School Workers

Health and Safety Guide

3rd Edition
Revised



CCOHS
Canadian Centre for Occupational Health and Safety

Emergency Information

Ambulance

Fire

Police

Poison Control Centre

Doctor

Company Emergency Phone Number

Prepared by

CCOHS

CANADIAN CENTRE FOR OCCUPATIONAL HEALTH AND SAFETY
Hamilton, Ontario, Canada

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School Worker's Health & Safety Guide

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(Revised)

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School Workers Health and Safety Guide

Performance Objectives

This is your guide to working safely in schools and other educational institutions. It will enable you to:

- Recognize workplace hazards.
- Prevent accident and injury by safe work practices and use of personal protective equipment.
- Deal with accidents and emergencies.
- Understand your duties and rights as given in occupational health and safety legislation.
- Contact government departments to find additional health and safety information.

Scope

This guide covers workplace conditions and work practices involved in teaching programs, extracurricular activities, and facility maintenance in schools. The subject matter is selected to suit the occupational health and safety needs of teachers, sports activitiy coordinators, school administrators, school board employees and facility management staff. It provides safe work practices for performing a wide range of tasks.

Target Audience

This guide is for workers, supervisors, teachers, principals, school board officials, and health and safety committee members in schools and other educational establishments.

In this guide, supervisor means the person to whom you report. A supervisor could be a Principal, Vice Principal, Office Superintendent or Facility Manager.

Summary

School employees include teachers, administrative staff, facility management personnel and maintenance staff. These employees perform a wide range of tasks, many of which can cause bodily injuries or illnesses. You can prevent such injuries and illnesses by following safe work practices and using proper protective equipment.

Examples of some injuries and illnesses are:

- cuts and amputations from the use of machine equipment in shops and gardening tools
- bruises and abrasions from plants and trees
- burns from hot soldering irons, burners, heaters, and hot engines in auto shop
- electrical shock or electrocution from contact with live electrical parts or electric powerlines
- slips and falls in wet and/or cluttered areas
- soreness and pain in hands, wrists, shoulders or back as a result of doing repetitive work, working in an awkward posture, applying too much force over and over again, operating vibrating equipment or lifting heavy loads improperly
- itching, swelling, redness of the skin as a result of exposure to very hot or very cold weather, or contact with plants and animals
- burns and skin disorders as a result of contact with laboratory chemicals, cleaning solutions, pesticides, or contact with plants and animals
- illness as a result of a contact with people with infectious diseases or contaminated biological wastes
- allergies as a result of dust inhalation, contact with plants and animals, and insect bits and stings

This Guide provides ways of working safely to prevent these injuries and illnesses.

Many health and safety behaviours are learned by example. Children and youth model what they observe. Comprehensive safe school plans and programs should focus attention on the strengths and experiences of students, teachers, administrators and other school personnel.

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Section I

Basic Rules of Safety

1. The Law Says...
2. Elements of On-the-Job Safety
3. Safety Tips for New Employees
4. Safety Tips for Supervisors
5. Safety Tips for Teachers

1. The Law Says...

Health and safety laws are meant to protect you.

By law your employer must provide you with a safe and healthy workplace.

It is your supervisor's responsibility to make sure that you understand the safe way of doing your work.

Working safely is your responsibility. You must use personal protective equipment required by your employer, follow safety procedures required in your area and report any hazardous conditions you are aware of.

If you think a task is dangerous for you or your co-workers, you have the right to refuse to do that job until it can be done safely. You must report to your supervisor your intention to refuse dangerous work.

2. Elements of On-the-Job Safety

1. **The right way is the safe way** of doing your job. Follow instructions. If you don't know, ask.
2. **Know potential hazards** in your work and ways of working safely to prevent such hazards.
3. **Know safety rules** for specific jobs and be able to explain these rules to fellow workers.
4. **Follow emergency procedures** in case of fires, medical emergencies, and need of rescue squad.
5. **Report all injuries** including minor scratches, cuts, burns, slips and falls. Your employer needs to know, in order to take corrective action to prevent future injuries. Follow your school's procedures for reporting injuries.
6. **Know where emergency equipment is located,** such as fire extinguishers, eyewash stations and safety showers, and learn how to use this equipment.

7. **Use personal protective equipment** as required by your employer. Such equipment includes, but is not limited to, safety glasses, hearing protectors, respirators, safety boots, hard hats, gloves and face shields.

8. **Learn special safety procedures** for particularly hazardous work such as vessel entry, confined space entry, electrical work and welding.

9. **Follow electrical safety rules** when using electrical equipment, grounding portable electrical tools and working near overhead power lines.

10. **Know how to protect yourself** when working outdoors in very cold or hot weather or in direct sunshine (UV rays).

11. **Perform a circle check** before taking out a vehicle.

12. **Lock out and tag energy sources** (electrical, mechanical, hydraulic, pneumatic, chemical, etc.) of all machinery and equipment under maintenance or repair.

13. **Report unsafe practises** and unsafe conditions.

14. **Wear clothing that's appropriate** to the tasks you perform. Do not wear loose sleeves, cuffs, rings, bracelets, nor anything else that may get caught in moving machinery and cause injury.

Off-the-job safety is equally important. Safety should not stop when you leave your school or workplace.

3. Safety Tips for New Employees

When you are starting a new job, ask your supervisor or employer the following health and safety related questions.

- What are the potential hazards of the job?
- Is job safety training available?
- What safety equipment do I need to do my job?
- Do I need to wear personal protective equipment (PPE)?
- Will I receive training on how to use the PPE?
- What do I do in case of fire or another emergency?
- Where do I find fire extinguishers, first aid kits, first aid rooms and emergency assistance?
- What are my responsibilities regarding health and safety?
- In case I notice something wrong, to whom should I report?
- Who is responsible for answering safety related questions?
- What do I do if I get injured, or have an accident?

4. Safety Tips for Supervisors

- Explain the importance of safety to employees.
- Implement safe work practises.
- Give praise for safe behaviour.
- Solicit participation.
- Reward for participation.
- Set an example.
- Promote safety by providing books, videos, literature etc.
- Visit school areas regularly.
- Know employees personally.
- Improve and simplify safety continuously.

5. Safety Tips for Teachers

Materials in this guide will assist you in integrating safety in your practice of conducting classroom, science laboratory and technology shop activities. A safety lesson is ideal for the first few days at the beginning of a semester. As a start, you may use the following tips to integrate safety as a part of the subject you're teaching.

Toxic Chemicals

WHMIS (Workplace Hazardous Materials Information System)

Make sure students understand the importance of :

- product labels on the containers,
- material safety data sheets,
- safe work practices and personal protective equipment.

Eyewash Stations and Emergency Showers

- Keep clear access to the eyewash at all times.
- Use eyewash station for rinsing chemicals or foreign material from the eye.
- TIP: Ask students to do a routine check to ensure eyewash is in good working order.
- Use emergency shower (deluge shower) for chemical splashes to the skin

(See pages 21 & 22 for more information on Eyewash Stations and Emergency Showers.)

Personal protective equipment (PPE)

- Know where safety glasses/goggles, aprons, lab coats, gloves are located.
- NEVER work with chemicals without using appropriate PPE

Fire

Make sure that:

- fire exits are not blocked;
- exit lights are properly lit;
- fire alarms are by the door, visible, and within easy access.

- Fire extinguishers (usually dry Chemical type "ABC") are on the wall near a doorway.
- Smoke detectors are located on ceilings and are routinely tested.

Noise

- Do not stay too long in a highly noisy area.
- Use ear protection if noise is too loud.

Vibration

- Stop using a vibrating tool if you feel tingling in your hands.
- Restart after the tingling disappears.

Slips, Trip and Falls

- Clean up spills and clutter immediately.
- Use proper ladders to work at heights.

Electric Shock

Electrocution

- Prevent contact with live electrical wires.
- Ensure that electrical equipment and power tools are properly grounded or insulated.

Machine Guards

- Do not operate a machine without its guards.

Lockout

- Lockout machinery and equipment if you clean, oil or adjust it.
- Remember, interlocks are not substitute for lockout.

Lasers

- Do not look directly into a laser beam or laser pointer.

Tools and Equipment

- Never operate a tool or equipment unless you have "hands-on" training.

Biological Hazards

- Prevent contact with body fluids like blood, vomit, etc.

Section II

Maintaining a High Standard of Safety

1. OSH Responsibilities
2. Workplace Inspections
3. Accident Investigation
4. First Aid

1. OSH Responsibilities

A chart like the one below will help you to keep track of OSH reponsibilities in your school.

Sample

OSH RESPONSIBILITIES

School _____ **Date** _____

EXPECTATION	RESPONSIBILITY
Keeping current with health and safety legislation	John Smith
Developing an OSH policy for the schools	Janet Jones
Developing safe work procedures	Committee
Taking action on an OSH committee s recommendations	Andrew Carr
Providing OSH training and education	Sam Smitt
Providing hazard information	Dave Burns
Doing preventative maintenance	John Smith
Purchasing equipment and supplies	Dave Burns
Providing first aid	Dave Burns
Monitoring employee health	Janet Jones
Planning fire protection	Committee
Conducting safety inspections	Janet Jones/Tom Lewis
Preparing records, statistics and reports	Sam Smitt/Janet Jones
Conducting accident investigations	Janet Jones / Tom Lewis
Planning safety audits	Andrew Carr
Ensuring contractor safety	John Smith
Inspection and testing of boilers, elevators, fire extinguishers, etc.	John Smith/Tom Lewis
Conducting emergency drills and developing emergency evacuation plan	Dave Burns
Health and safety orientation for new employees	Janet Jones

2. Workplace Inspections

Purpose

Occupational health and safety legislation requires regular workplace inspections. The purpose of an inspection or safety tour is to identify unsafe conditions, as well as unsafe practices, and to recommend corrective actions.

Inspection Team

Inspection teams may consist of a mix of personnel such as employees, supervisors and managers. Generally, the legislation sets out procedures for designating a person or persons to carry out workplace inspections.

Inspection team members should always use the required personal protection to protect themselves and to set a good example.

Roles and Responsibilities

The inspections are undertaken in accordance with a schedule agreed on by the Health and Safety Committee (JHSC). The inspection teams generally use a checklist as a guide for conducting inspections.

Inspection Reports

Inspection reports are communicated to all levels of the organization. Posting inspection reports on the bulletin board, reviewing them at joint health and safety committee meetings, and sending sending a copy to the management for review are all good communication methods.

Sample

INSPECTION CHECKLIST

Inspector(s) _____

Location/Department _____ **Date** _____

✔ *Satisfactory* ✗ *Unsatisfactory, requires attention*

SAFE WORK PRACTICES

- ❑ Proper manual lifting
- ❑ Smoking only in safe, designated areas
- ❑ Proper use of water hoses
- ❑ Safety procedures in place for sports/outdoor activities
- ❑ Other _____

USE OF PPE

- ❑ Eye/face protection
- ❑ Footwear
- ❑ Gloves
- ❑ Protective clothing
- ❑ Head Protection
- ❑ Aprons
- ❑ Respirators
- ❑ Other _____

HOUSEKEEPING

- ❑ Proper storage areas
- ❑ Proper storage of flammable material (oily/greasy rags, etc.)
- ❑ Proper disposal of waste
- ❑ Floors (clean, uncluttered, dry)
- ❑ Maintenance of yards, parking lots
- ❑ Other _____

ELECTRICAL SAFETY

- ❑ Machine grounding/GFI
- ❑ Electrical cords
- ❑ Electrical outlets
- ❑ Other _____

FIRE PROTECTION

- ❑ Fire extinguishers
- ❑ Proper type / location
- ❑ Fire equipment maintained
- ❑ Emergency exits/lighting
- ❑ Sprinkler systems
- ❑ Storage of flammable materials
- ❑ Other _____

TOOLS AND MACHINERY

- ❑ Lawn mowers
- ❑ Power tools
- ❑ Hand tools
- ❑ Snow blowers
- ❑ Machine guards
- ❑ Belts, pulleys, gears, shafts
- ❑ Oiling, cleaning, adjusting
- ❑ Maintenance, oil leakage
- ❑ Other _____

FIRST AID

- ❑ First aid kits in rooms / vehicles
- ❑ Trained first aid providers
- ❑ Emergency numbers posted
- ❑ All injuries reported
- ❑ Other _____

MISCELLANEOUS

- ❑ MSDS*/ Labels
- ❑ Dust / vapour / fume control
- ❑ Safe use of ladders / scaffolds
- ❑ New processes or procedures carried out
- ❑ Other _____

*MSDS=Material Safety Data Sheet

Notes

_____

_____

WORKPLACE INSPECTION REPORT

Sample

Location: _____ Department/Areas covered: _____

Date of Inspection: _____ Time of Inspection: _____

Copies to: _____ Inspected by: _____

Item (Location)	Hazards Observed	Repeat Item Yes/No	Priority A / B / C	Recommended Action	Responsible Person	Action Taken	Date

Analysis and comments:

Priority Codes: A = do immediately B = do within 3 days C = do within 2 weeks D = other

3. Accident Investigation

Purpose

The purpose of an accident investigation is to find the root cause of the accident and NOT to blame people for the accident. Accidents as well as incidents (close calls, or near misses) should be reported and investigated.

Investigation Team

The accident investigation team generally consists of the following:

- Manager/supervisor
- An expert (if appointed)
- Health and safety committee representative(s), certified member (if possible)
- Other persons as required

Roles and Responsibilities

You must report any occurrence of an accident or an incident to your manager/supervisor immediately.

Your manager/supervisor is responsible for conducting the accident investigation and notifying the health and safety committee and other people as required by legislation and your organization's procedures.

Report

Accidents involving injuries are reported using a form prescribed by Workers Compensation Board. The accident investigation report generally includes the following:

- Name and occupation of the employee
- Location and time of accident and injury (if any)
- Name(s) of witness(es)
- Description of the tasks, including the equipment and working conditions
- Description of what happened to cause the accident
- Name of the person(s) completing the report
- Recommendations for corrective action
- Name of physician or surgeon, if any

Sample

ACCIDENT REPORT FORM

Location

Date _____ Time _____

Reported by _____ Department _____

Location of the accident _____

Tasks being performed when accident occurred _____

Injuries

Names of persons affected _____

Nature of injury _____

Possible cause of injury _____

Equipment, tool, substance being used prior to accident _____

Property, Equipment Damage

Damaged items _____

Type of damage _____

How did the damage occur _____

Work Being Done When Accident Occurred

Description of work _____

Names of persons involved _____

Equipment(s) and tools used _____

Details (How accident occurred):

Sketch

4. First Aid

First aid regulations require that employers must provide first aid facilities, equipment, and trained personnel in all workplaces. People who hold valid first aid certificates should make sure that the contents of first aid boxes are regularly checked and maintained.

For information regarding first aid kits and first aid training, please contact the local St. John Ambulance Association or the Canadian Red Cross Society or any approved organization.

In case of injury or onset of a disease:

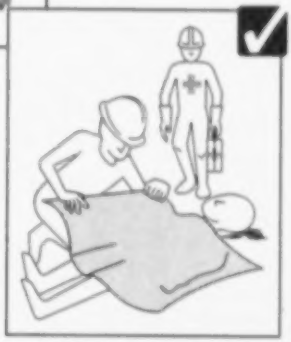
1. Promptly obtain first aid.
2. Notify your supervisor/employer.
3. Ask for a treatment memorandum to take to a medical practitioner or hospital of your choice.
4. Complete and promptly return all forms received from the Workers' Compensation Board.
5. Your supervisor should decide on the need for an accident investigation.

Your employer should post the names and workplace telephone numbers of the people who have agreed to provide first aid at the workplace.

Some types of injuries and illnesses may require special first aid procedures and immediate medical care. These include:

- Sports activities
- Chemical exposures
- Bleeding
- Heat Stroke
- Hypothermia (cold exposure)
- Frostbite

DO NOT MOVE an injured person.



WAIT for a qualified person to administer first aid.

Section III

Emergency Preparedness

1. Emergencies
2. Fire Safety
3. Eyewash Stations
4. Emergency Showers

1. Emergencies

Emergencies can be of two types:

Natural emergencies include floods, earthquake, tornadoes, wind storm, snow storm etc.

Technological emergencies include fire, explosion, building collapse, radiation, toxic substance spill, loss of power, water, communication, etc.

The Canadian Standard CSA Z131-M91, published by the Canadian Standards Association, provides guidelines for emergency planning. In the US please consult OSHA publication "Emergency Preparedness and Response" or OSHA Standard 29CFR1910.38.

2. Fire Safety

Fires

Four Elements—oxygen, fuel, heat, and chain reaction must be present to cause a fire. Remove any one of these four elements and the fire will go out.

Oxygen

Take the oxygen away from a fire by covering it with a wet blanket, throwing dirt on it or covering it with chemical or mechanical foam. These prevent oxygen from getting to the source of the fire.

Fuel

Take the fuel away from the fire. This can be difficult and dangerous. Pump contents of flammable liquid storage to an isolated, empty tank. Close a valve to stop the flow of liquid or gas from the tank.

Heat

Cool a fire source by applying something which absorbs heat. Water is the most commonly used cooling agent.

Chain Reaction

Interrupt the chain reaction of the fire by using chemical extinguishing agents such as dry chemical foam or carbon dioxide.

Classification of Fires

Fires are of four types:

Class A fires involve burning of ordinary materials such as wood, cloth and paper.

Class B fires involve burning of flammable liquids and gases such as paint, gasoline and natural gas.

Class C fires involve energized electrical equipment. The fuel burning could be A, B, or D.

Class D fires involve combustible metals such as magnesium, titanium, zirconium and sodium.

Fire Extinguishers

☑ SELECT and locate fire extinguishers according to:

- the type of potential fire hazard
- the degree of hazard
- the area to be protected

IDENTIFY locations.

LOCATE extinguishers along aisles that provide access to an EXIT.

LOCATE extinguishers to minimize travel distance.

LOCATE extinguishers according to fire regulations and National Fire Protection Association Standards.

KEEP extinguishers fully charged and in their designated places.

REPLACE used extinguishers with spare extinguishers during recharging.

INSPECT extinguishers at least monthly to ensure that:

- they are in their designated places
- they have not been tampered with or used
- their gauges indicate they are fully charged
- they are not corroded or otherwise impaired
- they are not damaged
- the maintenance record tags are up-to-date

SERVICE extinguishers at least yearly. Where needed, recharge or repair to ensure operability and safety.

ATTACH a tag to show the maintenance or recharge date and signature or initials of the person who performed the service.

ENSURE that extinguishers are tested according to manufacturers' recommendations.

DO NOT ATTEMPT to handle fires beyond your capabilities. Leave fire to Fire Department experts.

DO NOT OBSTRUCT fire exits or obscure them from view.

Use of Fire Extinguishers

Small fires can be put out using portable fire extinguishers. You should be trained in order to be able to use fire extinguishers. The type of extinguisher to be used depends on the type of fire.

CLASS OF FIRE	TYPE OF FIRE	APPROVED FIRE EXTINQUISHER
	Wood, paper, cloth	Type A; Type A-B
	Gasoline, paints, oils, grease	Type A-B; Type B-C; Type A-B-C
	Electrical wiring, fuse box	Type B-C; Type A-B-C
	Metals	Bucket of Sand

3. Eyewash Stations

☑ ENSURE that an eyewash station is located within 10 seconds travelling time and less than 100 ft from the hazardous work.

TEST plumbed eyewash weekly

CHECK portable eyewash weekly. Refill as needed.

KEEP bowl clean.

IDENTIFY location of eyewash:

- distinctly
- uniformly
- graphically

☒ DO NOT BLOCK the actuator (push handle).

Operating Procedures

☑ REMOVE head covers.

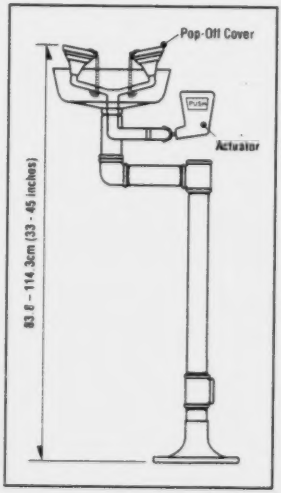
ACTIVATE unit.

LOWER head so that both eyes are flushed.

MAINTAIN contact with water or fluid for at least fifteen minutes.

CALL for assistance.

Refer to ANSI Z358.1-1998 "Emergency Eyewash and Shower Equipment" for further information.



An Emergency Eyewash Station

4. Emergency Showers

☑ ENSURE that shower is located within 10 seconds travelling time and less than 100 ft from the hazardous work area.

CHECK that the location is away from electrical apparatus and power outlets.

TEST shower weekly.

IDENTIFY location of shower.

- distinctly
- uniformly
- graphically

☒ DO NOT BLOCK the actuator (pull handle).

Operating Procedures

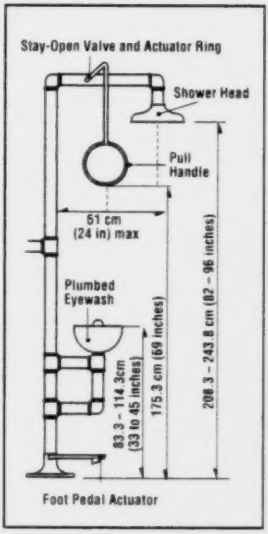
☑ STAND under shower head immediately.

PULL actuator ring. (The actuator is the pull handle)

REMOVE contaminated clothing rapidly while under water stream.

STAY under water stream for at least fifteen minutes.

CALL for assistance.


Stay-Open Valve and Actuator Ring
Shower Head
Pull Handle
51 cm (24 in) max
Plumbed Eyewash
83.3 – 114.3cm (33 to 45 inches)
175.3 cm (69 inches)
208.3 – 243.8 cm (82 – 96 inches)
Foot Pedal Actuator

An Emergency Shower

Section IV

Classroom Safety

1. General Safety
2. Science Rooms

1. General Safety

Periodically inspect (preferably at the beginning of the school term) the general condition of the classrooms and the building facilities. You may use the following checklist as a guideline. Add or delete items of inspection as required.

Sample

GENERAL SAFETY CHECKLIST

School **Date**

✔ *Satisfactory* ✗ *Unsatisfactory, requires attention*

	ITEM	INSPECT FOR ...
❑	OSH legislation	Posted (as required)
❑	Floors	Clean, dry, uncluttered, non-skid
❑	Ceilings, walls, windows	Clean, dry, dust/mould-free
❑	Furniture	Good general condition
❑	Stairways	Tidy, uncluttered, well illuminated
❑	Exits and signs	Visibility, illumination
❑	Ladders	Proper type, condition, access
❑	Illumination	Intensity, glare
❑	Temperature	Thermal comfort of occupants
❑	Ventilation	Condition of ducts, odours, noise
❑	Fire extinguisher	Proper type, location, inspection/ maintenance
❑	Waste disposal	Waste disposal containers, recycling containers
❑	Clean-up routine	Established responsibilities, frequency
❑	Electrical equipment	Power outlets, extension cords, portable electrical equipment
❑	First aid procedure(s) *	Posted, first aid box accessible, staff adequately trained
❑	Emergency procedures	Posted, clear, staff trained
❑	WHMIS	Labels, MSDS, training provided
❑	Safety rules	Posted, clear, understood
❑	Hazard warning signs	Posted, visibility

2. Science Rooms

Chemical Storage

- [x] MAINTAIN inventory of chemicals and make sure that material safety data sheets (MSDS) are available for each chemical.

ESTABLISH a separate and secured storage area.

IDENTIFY and properly label all products before storing.

MAKE SURE that the chemical storage area meets the requirements of the local fire code.

MAKE SURE that smoke detectors and fire extinguishers are installed and maintained in good working order.

POST the name and telephone number of the emergency contact person(s) responsible for the chemical area.

ENSURE that all staff are informed and trained in emergency procedures.

DATE all chemicals on receipt.

DISPOSE of chemicals which are not needed and chemicals with lapsed expiry date.

CLOSE caps and lids tightly before storing the containers.

SECURE the storage shelving firmly to the ground and the walls.

USE shelves with lips to prevent bottles from rolling off.

WOODEN storage shelves are best suited for general chemicals.

USE metal shelves for flammable products to reduce fire hazards.

MAKE SURE that the chemical storage area is ventilated separately from rest of the building.

WHEN STORING two chemicals side by side make sure that they are compatible and will not react to produce a hazardous chemical reaction.

FOLLOW recommended cleanup procedures in case of spill.

DO NOT STORE chemicals in fume hoods.

DO NOT STORE chemicals in refrigerators unless appropriate and unless refrigerator is "spark-proofed".

DO NOT STORE chemicals on the floor or on open shelves or counter tops.

DO NOT STORE chemicals above eye level.

DO NOT STORE chemicals over or near a sink.

DO NOT STORE nitric acid with other acids.

DO NOT STORE together non-compatible chemicals which produce hazardous chemical reactions.

Examples of hazardous chemical reactions are:

1. Acids and bases.
2. Flammable/combustible liquids, greases, and ordinary combustibles, oxidizing materials, such as nitric acid, perchloric acid and sulphuric acid.
3. Glycerol and solid potassium permanganate.

Laboratories

Periodically inspect (preferably at the beginning of the school term) the general condition of the Science Lab(s). You may use the following checklist as a guideline—add or delete items of inspection as required.

For Additional Information

1. Contact your Principal or Health and Safety Officer.
2. Contact the **CCOHS Inquiries Service**
   Phone: 1-800-263-8466 (Toll free)
   E-mail: inquiries@ccohs.ca
   Web Site: http://www.ccohs.ca

Sample

SCIENCE LAB CHECKLIST

Date _____ **Room No.** _____

Inspector(s) _____

✔ *Satisfactory* ✗ *Unsatisfactory, requires attention*

ITEM	INSPECT FOR...
FACILITIES	
❑ Hazard warning signs	posted, condition, location
❑ Equipment	condition, location
❑ Gas and water taps	condition, location
❑ Electrical outlets	condition, location
❑ Emergency equipment (fire, eyewash, etc.)	availablility, condition, location
❑ First aid box	availability, contents, location
❑ Broken glassware disposal	availability, condition, location
❑ Labware cleaning facilties	condition, location
CHEMICALS	
❑ Procedure(s) for: purchasing, storage, use and disposal	established, availability, location
❑ MSDSs and labels (labels for biological specimens stored in chemical solutions included)	availability, location
❑ WHMIS training	availability
❑ Authorized access only	posted
❑ Procedures for toxic substances	established, posted
❑ Procedures for compliance with health and safety regulations	established, posted
❑ Emergency contact procedures	established, posted
PRE-ACTIVITY AUDIT	
❑ Safety and emergency procedures for students	established, posted, understood
❑ Student awareness of potential hazards.(ie. long hair, jewellery, etc.)	understanding of safe practices

ITEM	INSPECT FOR...
PRE-ACTIVITY AUDIT cont...	
❑ Written procedures for activities	established, posted
❑ Personal Protective Equipment (PPE)	availability, condition
❑ Equipment operating instructions for students	posted
TEACHER DEMONSTRATIONS	
❑ Experiments thoroughly tested and approved	documentation
❑ Pre-test all steps before class	documentation
❑ Safety shield to protect students (as required)	condition, location
❑ Smallest possible quantities used	awareness
❑ Exhaust/fume hoods for hazardous gases and fumes	availability, condition, location
DURING LAB...	
❑ Procedures explained in detail, including safety precautions	understanding
❑ Supervision at all times	responsibility assigned
❑ Enforce use of PPE; ensure long hair is secured	responsibility assigned
❑ Local exhausts and fume hoods operating (if required)	availability, condition, location
❑ Procedures for open flames	established, explained, posted
❑ Follow clean-up procedures	established, explained, posted
AFTER LAB...	
❑ All water and gas taps closed	responsibility assigned
❑ Fumes, smoke and vapours cleared before turning off exhaust fans	responsibility assigned
❑ Chemicals returned to storage	responsibility assigned
❑ Working surfaces and floor cleaned, dry and uncluttered	responsibility assigned

Section V

Arts and Crafts

1. Arts and Crafts Materials
2. Photography

1. Arts and Crafts Materials

Commonly Used Products

Art and craft materials that may cause adverse health effects include the following:

- Paints, pigments and solvents
- Dyes and stains
- Pottery clay
- Sculpture and moulding materials
- Resins
- Wood preservatives
- Printing inks and washes
- Aerosol sprays, glues, adhesives and permanent markers
- Photographic chemicals

Health Hazards

Health hazard resulting from exposure to a particular product will depend on the product ingredients, route of entry into the body, and the amount of intake (dose).

Routes of Entry

Toxic substances may enter the body through one or more of the following routes:

1. Inhalation of dusts, fumes, mists, vapours, and gases.
2. Ingestion of contaminated foods and drinks, and smoking of cigarettes that could be contaminated by not washing hands after handling chemicals.
3. Absorption through skin, wounds, cuts and the eyes.

In addition, allergic reactions can occur as a result of skin contact with certain metals, epoxy resins, amines, and some other materials.

Protection

☑ SUBSTITUTE toxic products with less toxic ones.

FOLLOW safety measures recommended in material safety data sheets (MSDS).

OBSERVE good personal hygiene.

WASH hands before and after eating, drinking and going to the washroom.

☒ DO NOT MIX contaminated protective clothing with your normal clothing.

Chemicals

☑ CHECK MSDS for potential hazards and safety precautions.

MAKE SURE that ventilation and exhaust systems are in good working order.

USE approved flammable liquids storage cabinets for storing flammable materials and ensure that the storage area has automatic sprinkler systems and appropriate extinguishers.

ENSURE that smoke detectors are in working condition in areas where art materials are used and in all chemical storage areas.

ENSURE that emergency phone numbers are posted in an accessible, visible location.

Flammable and Combustible Materials

☑ KEEP containers of flammable and combustible liquids closed and covered.

FOLLOW methods recommended by the National Fire Protection Association (NFPA) when transferring liquids.

GROUND any metal drums which contain combustible or flammable liquids that could be ignited by static electricity created by pouring (e.g. petroleum-based solvents like toluene). Also ground metal solvent container into which solvent is poured.

DISPOSE of waste liquids, rags, or paper soaked with flammable or combustible liquids in approved, fireproof waste disposal cans with self-closing tops, and dispose of the waste daily.

STORE combustible solids in sealed containers to prevent fires.

STORE flammable and combustible liquids in approved, labelled containers in flammable liquid storage cabinets.

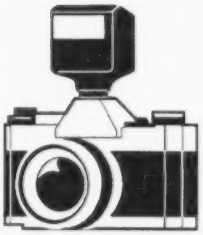
WET-MOP or wet vacuum explosive dusts and combustible solids (if compatible with water) and store in approved self-closing waste cans.

DO NOT SMOKE in any room with flammable materials.

DO NOT STORE flammable or combustible liquids near doorways or escape routes.

DO NOT USE space heaters near flammable materials.

2. Photography



- [x] WEAR an approved dust respirator, goggles and rubber gloves, when pouring developer powders.

WASH gloves before reusing.

MAKE SURE eyewash facilities are accessible and functional in the darkroom area.

USE TONGS, not bare hands, when using developer baths.

WASH with plenty of lukewarm water for 15–20 minutes, following eye splash or serious skin exposure. Seek first aid and see a physician as soon as possible.

MAKE SURE that ventilation system adequately removes the acetic acid and other harmful vapours.

STORE concentrated acids and other corrosive chemicals on low wooden shelves in ventilated cabinets.

Section VI

Industrial Technology

1. Hand Tool Operations
2. Drill Presses
3. Wood Turning Lathes
4. Band Saws
5. Circular Saws
6. Planers
7. Grinders
8. Soldering Irons
9. Gas Welding and Cutting

1. Hand Tool Operations

- [x] WEAR safety glasses or goggles.

ENSURE that you are properly trained in the safe use of hand tools.

USE good quality tools.

SELECT the right tool for the job. Substitutes increase the chance of accidents.

MAINTAIN tools carefully. Keep them clean and dry, and store them properly after each use.

KEEP tools in good condition at all times.

INSPECT tools for defects before use.

REPLACE or REPAIR defective tools.

KEEP cutting tools sharp.

REPLACE cracked and broken handle on files, screwdrivers, hammers, or axes.

REPLACE worn jaws on wrenches, pipe tools and pliers.

REDRESS burred or mushroomed heads of striking tools.

USE tools designed to allow wrist to stay straight. Avoid using hand tools with your wrist bent

PULL ON a wrench or pliers. Never push unless you hold the tool with your palm open.

KEEP the work area clean and tidy to avoid clutter which may cause accidents.

DO NOT USE tools for jobs they are not intended to do.

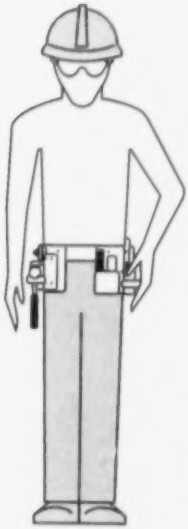
DO NOT APPLY excessive force or pressure on tools.

DO NOT CUT towards yourself when using cutting tools.

DO NOT HOLD the stock in the palm of your hand when using a cutting tool or a screwdriver.

DO NOT WEAR bulky gloves to operate hand tools.

DO NOT CARRY a sharp tool in your pocket.



2. Drill Presses

Guidelines for Safe Use

☑ READ owner's manual and follow operating instructions.

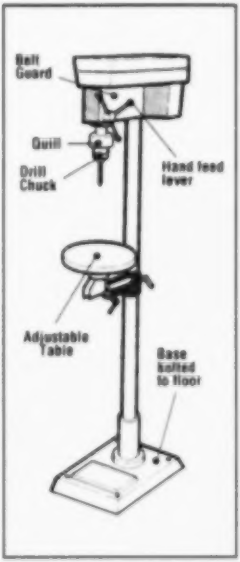
WEAR safety glasses.

CONFINE long hair to prevent it from getting caught in rotating parts.

ENSURE that drill press has a start/stop button within easy reach.

USE a brush or rake to remove cuttings.

REMOVE burrs from a drilled hole.

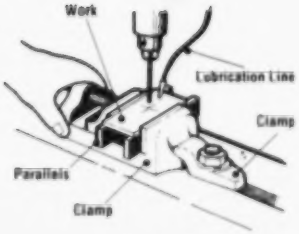


USE a clamp or drill vice to prevent work from spinning.

LUBRICATE drill bit when drilling metal.

REDUCE drilling pressure as drill breaks through the workpiece. This prevents drill from pulling into the work and breaking.

KEEP drill bits clean and sharp.

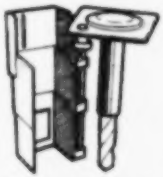


Use a clamp to hold the workpiece in place

KEEP floor around the drill press free of oil and grease.

KEEP the working surface clean of scraps, tools and materials.

KEEP guards in place.



Keep guards in place

DO NOT WEAR any loose clothing or ties. Roll sleeves above the elbow to prevent them from being caught in revolving parts.

DO NOT WEAR rings, watches, bracelets or gloves while working with a drill press.

DO NOT SET speeds, or adjust or measure work, until machine is completely stopped.

DO NOT LEAVE chuck key in drill chuck at any time.

DO NOT HOLD work by hand when drilling holes larger than 12 mm (1/2 in.) in diameter.

DO NOT PLACE hands under stock being drilled.

DO NOT STOP rotation of chuck and spindle by hand.

DO NOT REMOVE a broken drill with a centre punch and hammer.

DO NOT LEAVE drill press running unattended.

3. Wood Turning Lathes

Guidelines for Safe Use

☑ READ the operator's manual carefully. Learn the applications and limitations of the machine.

WEAR safety goggles or face shield at all times.

USE stock free of defects.

HOLD tools firmly with both hands against the tool rest.

HOLD the stock securely on the faceplate or between the centres.

USE only those tools that have been furnished or approved.

USE sharp, well-maintained chisels and gouges.

OPERATE lathe at low speed with moderate depth of cut to prevent flying splinters during roughing operations. Speed of the lathe depends on type of wood, diameter of stock, nature of work being done and type of tool used.

ADJUST tool rests parallel and as close as possible to the stock and high enough so that tools will cut into the wood slightly above the centre of the work being turned.

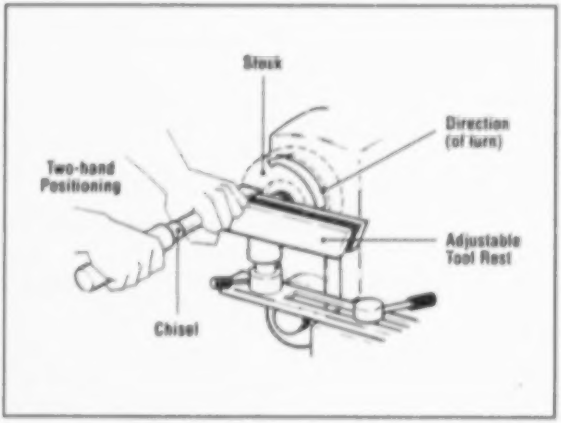
REMOVE tool rest when sanding or polishing.

HOLD sandpaper in the fingers and press lightly against a small area at the top of the rotating shaft when hard sanding. This will keep the sandpaper from catching and pulling your hand around the stock.

DO NOT WEAR gloves, loose clothing or rings. Clothing should be worn snugly with shirts tucked in.

DO NOT USE makeshift tools.

DO NOT USE stock containing checks, splits, cracks, or knots.



To make a faceplate turning, the tip of the chisel is steadied by the one hand, which holds the edge against the tool rest, while the other hand guides the tool. Note that the tip of the chisel is held higher than the handle.

4. Band Saws

Guidelines for Safe Use

- [x] WEAR safety glasses or a face shield.

ENSURE all safeguards are in place.

ENSURE the blade runs freely in and against the upper and lower guide rollers.

ENSURE the machine has been properly oiled.

ENSURE the blade is under proper tension.

ENSURE the band saw is securely anchored to the floor to reduce vibration.

ENSURE all band wheels are enclosed.

ENSURE that the band saw is equipped with automatic tension control.

KEEP the floor around a band saw free of obstructions.

ADJUST guard height with 3mm (1/8 in) clearance of material.

FEED with body to side of stock.

USE band saw blades which are sharp, properly set and suitable for the job.

HOLD stock firmly and flat on the table. This prevents the stock from turning and drawing your fingers against the blade.

RELEASE cuts before long curves when doing intricate scroll-type work.

PROVIDE adequate lighting at the machine table. A light fixture with a flexible connection can provide essential lighting.

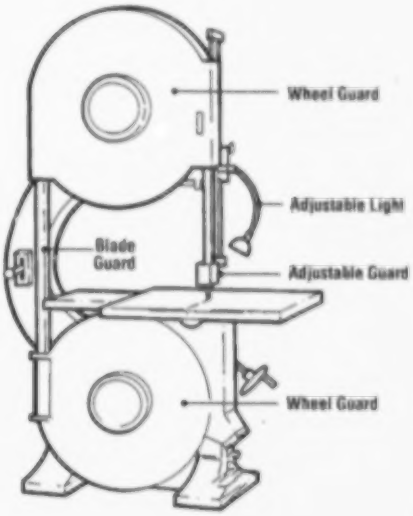
DO NOT ATTEMPT to back the stock away from the blade while the saw is in motion if work binds or pinches on the blade.

DO NOT STOP the band saw by thrusting stock against the cutting edge or side of blade immediately after the power has been shut off.

DO NOT REMOVE sawdust or cuttings from the table by hand. Use a stick or brush.

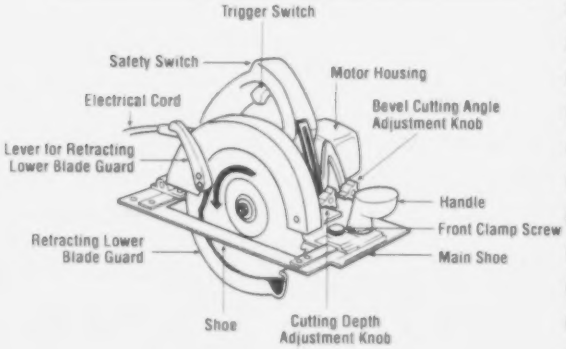
DO NOT LEAVE the saw running unattended. Turn off the power and make sure the machine has stopped turning.

LOCKOUT power source when cleaning, oiling or adjusting.



5. Circular Saws

Circular saws are designed for right-hand operation; left-handed operation will demand more care to operate safely



Guidelines for Safe Use

☑ WEAR safety glasses or a face shield.

WEAR approved respirators when exposed to harmful or nuisance dusts.

USE a sharp blade that is designed for your work.

CHECK the retracting lower blade guard frequently to make certain it works freely. It should enclose the teeth as completely as possible, and cover the unused portion of the blade when cutting.

ALLOW the saw to attain full power before cutting.

ENSURE the retracting lower blade guard is fully returned before laying the saw down.

DISCONNECT power supply before adjusting or changing the blade.

KEEP all cords clear of cutting area.

USE two hands to operate saw; one on trigger switch, other on front knob handle.

KEEP upper and retracting lower blade guard clean and free of sawdust.

KEEP motor free from accumulation of dust and chips.

CHECK saw for proper blade rotation.

SECURE work being cut to avoid movement.

DO NOT USE a saw that vibrates or appears unsafe in any way.

DO NOT FORCE the saw at any time during cutting.

DO NOT CUT materials without first checking for obstructions or foreign objects such as nails and screws.

DO NOT HOLD or fix the retracting lower guard in the open position.

DO NOT PLACE hand under the shoe or guard of the saw.

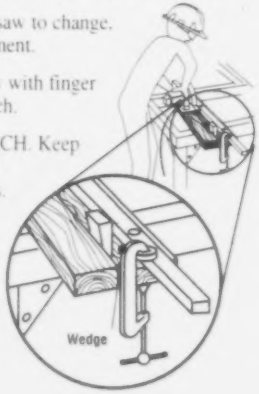
DO NOT OVER-TIGHTEN the blade locking nut.

DO NOT TWIST the saw to change, cut or check alignment.

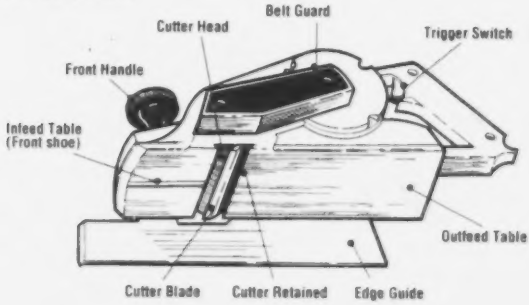
DO NOT CARRY saw with finger on the trigger switch.

DO NOT OVER-REACH. Keep proper footing and balance at all times.

DO NOT RIP stock without using a wedge or guide that is clamped or nailed to stock.



6. Planers



Guidelines for Safe Use

☑ WEAR safety glasses or a face shield.

USE blades of the same weight, and set at exactly the same height.

ENSURE blade locking screws are tight.

REMOVE adjusting keys and wrenches before turning power on.

DISCONNECT the planer from the power supply before making any adjustments to the cutter head or blades.

Secure Work

☑ SUPPORT stock in a comfortable position for doing the job safely and accurately.

DISCONNECT power supply to dump out chips.

Support stock for safe accurate planing

DO NOT PUT finger on any object in deflector to clean out chips while planer is running.

Cutting

CHECK stock thoroughly for staples, nails, screws or other foreign objects before using planer.

START a cut with the infeed table (front shoe) resting firmly on the stock, and cutter head slightly behind the edge of the stock.

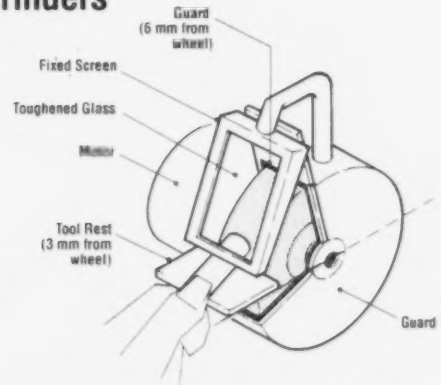
USE two hands to operate planer; one on the trigger switch, the other on front handle.

KEEP all cords clear of cutting area.

DO NOT OVER-REACH. Keep proper footing and balance at all times.

DO NOT SET planer down until blades have stopped turning.

7. Grinders



Guidelines for Safe Use

☑ FASTEN pedestal and bench grinders securely.

ENSURE all the guards are in place and secure before using a grinder.

ADJUST tool rests to within 3 mm (1/8 in) of wheels. Never adjust rests while wheels are moving. Work rest height should be on horizontal centre line of the machine spindle.

MAINTAIN 6 mm (1/4 in) wheel exposure with a tongue guard or a movable guard.

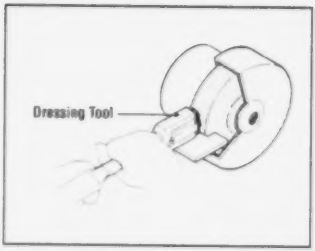
STAND to one side of the grinder until the operating speed is reached.

BRING work into contact with the grinding wheel slowly and smoothly, without bumping.

APPLY gradual pressure to allow the wheel to warm up evenly. Use only the pressure required to complete a job.

MOVE the work back and forth across the face of the wheel. This prevents groove forming.

DRESS wheels regularly. Do frequent light dressings rather than heavy dressings.



SUPPORT dressing tool to apply leverage without undue effort. With revolving cutter dressing tools use the lugs as anchors.

REPLACE worn wheels if they cannot be dressed.

ENSURE the grinder speed does not exceed the operating speed marked on the wheel.

VISUALLY inspect wheels for possible damage before mounting.

WEAR eye, ear and face protection. Metatarsal safety boots and respiratory protection are advisable depending on the work. Wear gloves only where necessary.

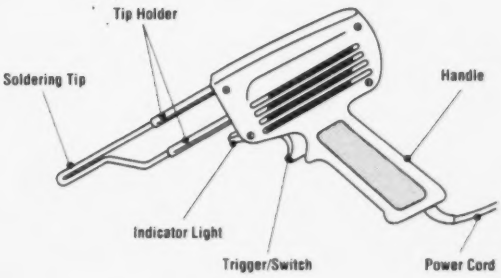
DO NOT GRIND wood, plastics and non-iron metals on ordinary wheels.

DO NOT USE a wheel that has been dropped.

DO NOT LEAVE grinding wheels standing in liquids. This causes balance problems.

DO NOT GRIND on the side of a regular wheel.

8. Soldering Irons



Soldering irons must be properly cleaned and tinned as well as heated to the correct temperature.

Guidelines for Safe Use

☑ TURN ON exhaust fan.

USE fluxes with care—clean work area and material when soldering is completed.

CLEAN pieces to be soldered and make sure they are tight fitting.

TAKE CARE when using hot equipment and materials.

TURN OFF all soldering equipment when finished.

9. Gas Welding and Cutting

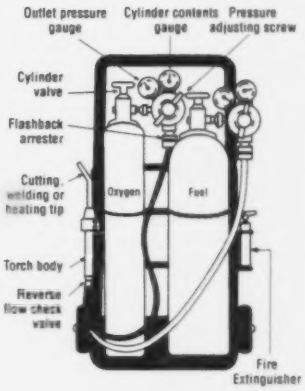
Equipment Connection

> **Oxygen cylinders** have right turning valves and connections. **Fuel cylinders** have left turning valves and connections.

1. ***Crack*** open cylinder valves slightly and then close immediately. This blows out dust and grit that could restrict the gas flow or damage the regulator.

2. **Attach** the oxygen and fuel gas regulators to their cylinders. Tighten nuts with a proper wrench. Never force poor fitting connections.

3. **Install** non-return valves and flashback arrestors on the torch and regulator end of the hoses.

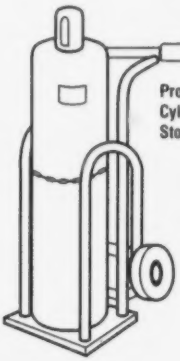


4. **Connect** the green (black) hose to the oxygen regulator and the red hose to the fuel gas regulator.

5. **Connect** torch *green hose* to the oxygen inlet and *red hose* to the fuel gas inlet. Finger tighten hose nuts before using a wrench. The wrench may damage unprotected threads.

Guidelines for Safe Use

☑ KEEP cylinders, secured upright in a cylinder trolley for firm support.



Proper Cylinder Storage

EXAMINE hoses before use for signs of damage. Secure connections with clips or crimps. Check connections and non-return valves regularly.

STAND to one side of regulator face when opening the cylinder valve outlet. Open cylinder valves slowly.

OPEN cylinder valves only with approved keys or handwheels.

SELECT the proper welding head or mixer, tip or cutting nozzle from charts supplied by the manufacturer and screw it firmly into the torch.

USE table tops made of fire brick or steel plate. Regular brick may pop or explode from heat. Keep flames and hot metal off concrete.

LEAVE the valve wrench on the fuel gas cylinder whenever the valves are open. This permits emergency shut-off of the gas.

WEAR CSA (ANSI) approved welding goggles.

USE a welding helmet when recommended.

AVOID loose clothing with cuffs, pockets, or other folds that could trap sparks. Tape them closed if necessary.

WEAR appropriate protective gloves, clothing, and a leather apron to protect against flying sparks and hot metal objects.

WEAR CSA (ANSI) approved safety shoes appropriate for the task.

COVER any nearby flammable or combustible materials (e.g. wood floors, walls and classroom projects) with fireproof materials such as fibreglass blanket.

DO NOT USE excessive force to open or close cylinder valve.

DO NOT CONNECT hose longer than needed. Keep hose from becoming kinked or tangled.

DO NOT USE tape to repair a leaky hose.

DO NOT HAVE oil or grease on any welding and cutting equipment. Oil or grease may cause an explosion.

DO NOT WELD near spray paints, solvents, or other flammable materials.

DO NOT WELD in presence of chlorinated hydrocarbon solvents (non-flammable but they form phosgene in presence of UV) used frequently as degreasers metal could still be wet; vapours could be in work area.

For more detailed information on welding, see the **Welders Health and Safety Guide** from CCOHS.

Section VII

Maintenance and Custodial Practices

1. Office Safety
2. Ladders
3. Scaffolds
4. Powered Boom Platforms
5. Manual Materials Handling
6. Lock-out Procedures
7. Confined Space Entry
8. Toxic Chemicals
9. Painting
10. Basic Electrical Safety
11. Grounds Maintenance
12. Waste Disposal

1. Office Safety

Most office accidents result from slips, trips and falls, lifting objects, being caught in or between things, and punctures or cuts.

Filing Cabinets

☑ PLACE cabinets so that the drawers do not open into the aisles.

LOAD cabinets starting from the bottom for stability.

SECURE cabinets to wall or floor.

USE handles to close drawers to avoid catching fingers.

CLOSE cabinet drawers when not in use.

AVOID overfilling cabinets to prevent paper and staple cuts.

☒ DO NOT KEEP heavy objects on top of tall filing cabinets.

DO NOT OPEN more than one drawer at a time.

Floors and Stairs

☑ CLEAN up spills and tracked-in rain or snow.

PICK objects up off the floor. Even paper, pencils and rubber bands can cause trips and falls.

USE slip-resistance preparations on linoleum, tile, or other polished floor surfaces.

SECURE carpets and rugs.

USE handrails on stairs.

REMOVE stairway distractions such as mirrors, decorations or posters.

WALK on the right.

INSTALL mirrors at blind, busy corners.

☒ DO NOT STORE boxes, equipment, or supplies outside doorways or in aisles.

DO NOT CARRY loads that obstruct vision.

DO NOT RUN, especially near corners.

DO NOT PARTICIPATE in horseplay.

Office Equipment

☑ USE fingertip guards when handling paper.

STORE pencils and pens point down or flat in drawers.

SHEATH scissors, letter openers, razor blades or other sharp tools before storing.

USE paper cutters safely:

- keep knife blades in locked position
- use proper guards
- maintain firm grip on blade handle
- do not cut too many papers at once

USE staple removers to remove staples.

FILE sharp edges off metal furniture.

USE a proper ladder or step stool to reach high places. Do not use a box, desk or rolling chair.

Office Machines

☑ USE proper guards on machines.

OBSERVE directions and cautions when cleaning, oiling or adjusting machinery.

CALL service for repairs.

DISCONNECT and replace frayed electrical cords or plugs.

UNPLUG equipment when not in use or before making adjustments.

2. Ladders

Inspection

☑ INSPECT ladders before each use for:

- missing, cracked, split, worn, loose or broken rails, braces, steps or rungs (they are loose if they can be moved by hand)
- sharp edges on rails and rungs
- twisted or distorted rails
- loose nails, screws, bolts, hinges or other metal parts
- rough or splintered surfaces
- damaged or worn non-slip feet
- missing identification label
- corrosion, rust, oxidization and excessive wear, especially on treads
- defective locks that do not seat properly when ladder is extended

TAG defective ladders and take out of service.

☒ DO NOT MAKE temporary or makeshift repairs.

DO NOT TRY to straighten or attempt to use bent or bowed ladders.

Setting Up Portable Ladders

Falls from portable ladders are a major source of serious injury. Be aware of possible hazards and take proper precautions to prevent falling.

☑ USE ladder designed for your task. Consider strength, type and CSA approval.

GET help when handling a heavy or long ladder.

KEEP ladder away from electrical wires.

CLEAR debris, tools and other objects from area around base and top of ladder.

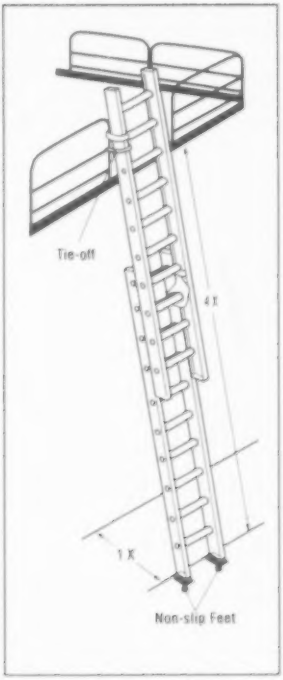
TIE OFF ladder at the top and secure bottom to prevent it from slipping.

SET UP barricades and warning signs when using ladder in a doorway or passageway.

PLACE ladder feet 1/4 of ladder's working length away from the base of the structure.

EXTEND ladder at least 1 m (3 ft) above the landing platform.

LOCATE ladder on a firm footing using slip-resistant feet or secure blocking, or have someone hold the ladder.



REST both side rails on top support, and secure ladder to prevent slipping.

DO NOT USE ladder in a horizontal position as a scaffold plank or runway.

DO NOT USE makeshift items such as a chair, barrel or box, as a substitute for a ladder.

DO NOT SPLICE together short ladders to make a longer ladder. Side rails are not strong enough to support the extra load.

DO NOT USE ladder in passageways, doorways, driveways or other locations where a person or vehicle can hit it. Erect suitable barricades or lock doors shut.

DO NOT PLACE ladder against flexible or movable surfaces.

DO NOT STRADDLE the space between the ladder and another object.

Working on Portable Ladders

☑ CHECK for overhead electrical wires before setting up ladder.

TIE OFF yourself with a safety harness when working 3 m (10 ft.) or more off the ground or when working with both hands.

CLEAN muddy or slippery boot soles before mounting ladder. Avoid climbing with wet soles. Ensure that footwear is in good condition.

FACE the ladder when going up or down and when working from it.

KEEP the centre of your body within the side rails.

ENSURE that only one person is on a single-width ladder. Only one person is allowed on each side of a double-width ladder.

MAINTAIN three point contact by keeping two hands and one foot, or two feet and one hand on ladder at all times.

GRASP rungs when climbing ladder, not side rails. If your foot slips on ladder, it is easier to hold onto rungs than to side rails.

Maintain 3-point Contact

WEAR protective footwear with slip-resistant soles and heels.

ENSURE that all electrical equipment used during ladder work is in good condition and properly grounded.

REST frequently to avoid arm fatigue and disorientation when the work demands reaching and looking up above your head.

DRAPE your arms over a rung and rest your head against another rung or side rail if you become dizzy or panicky. Climb down slowly.

DO NOT CARRY objects in your hands while on a ladder. Hoist materials or attach tools to a belt.

DO NOT WORK from top three rungs. The higher a person goes on a ladder, the greater the possibility that the ladder will slip out at the base.

DO NOT OVER-REACH from ladder, move the ladder as required.

DO NOT USE ladder near electrical wires.

Hazard Warning Sign

3. Scaffolds

☑ TEST all scaffold planks before use.

REPORT any damage to scaffolds immediately.

PROTECT all planked or working levels with proper guardrails, mid-rails and toe boards on all open sides and ends of platforms.

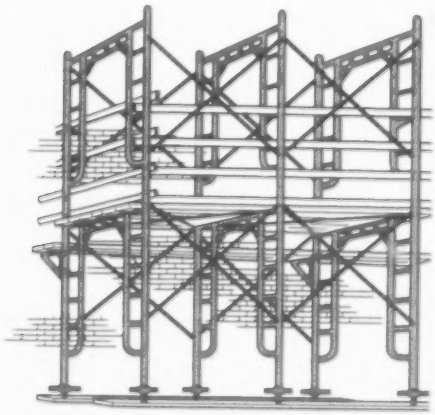
INSTALL and SECURE all necessary planks, decks and guardrails before work begins.

USE proper fall protection.

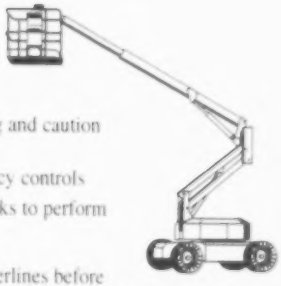
☒ DO NOT USE scaffolds for the storage of materials.

DO NOT OVERLOAD a scaffold.

Scaffolds must be able to support at least four times their designated load capacity.



4. Powered Boom Platforms



☑ READ the manufacturer's operating manual and familiarize yourself with:

- manufacturer's warning and caution signs on the machine
- location of all emergency controls
- daily maintenance checks to perform
- applicable regulations

CHECK for overhead powerlines before moving the machine or operating the platform.

LOCK, or otherwise prevent its unauthorized use, before leaving the machine unattended.

KEEP platform load below maximum rate working load (RWL)—preferably below 2/3 of RWL.

LABEL all controls with action and direction.

KEEP guardrails in good condition and make sure that chain or gate at opening is secure before moving platform.

SHUT OFF power and insert required props before servicing machine or checking for problems.

POSITION boom in line with direction of travel wherever possible.

KEEP ground personnel away from machine and out from under platform or bucket.

MAKE SURE that extension cords are long enough to reach the expected platform height.

☒ DO NOT JAM controls through neutral to reverse direction of movement or operation. Move control gradually, pausing slightly in neutral for safe, smooth operation.

5. Manual Materials Handling

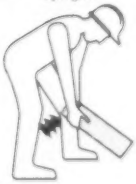
Lifting boxes...

STORE and work with materials at waist height.

DO NOT BEND over and try to lift item from floor all at once.

...from the ground

1. RAISE the item upright.



2. PUT one knee against the item.

3. PULL the item up your leg.

4. REST the item on the edge of your other knee.

5. STAND upright.

6. CARRY the load with your back in the upright position.

Transferring Weight

Use the following sequence of motions for moving heavy or bulky materials.

REDUCE the load on your back by *transferring* weight.

SHIFT your body weight from one leg to the other.

AVOID twisting your back.

1 PULL the material toward you.
2 TRANSFER your weight to the lift side.
3 LIFT only to the level required.
4 SHIFT your weight to your other leg.
5 PUSH the material into position.

6. Lock-out Procedures

Purpose

The purpose of lock-out is to protect a person working in a confined space, a vessel, machine or moving equipment.

Hazards

Accidental starting of machines while someone is working on them is one of the major causes of amputations and serious injuries.

Established Procedures

In most instances, your school/board will have an established lock-out procedure. In the event that the school does not have an established procedure, use the following safe work procedures as a guidance to develop one.

☑ MAKE SURE that you possess an individually numbered lock and key if you are required to enter a confined space, vessel, machine or work on moving equipment.

SHUT OFF the machine or equipment, then disengage all sources of power and lock them in the OFF position.

RELEASE the build-up of air, hydraulic, steam or gas pressure and ground electric charge build-up before starting work and valves locked in OFF position.

NOTIFY users of work being done on machine or equipment.

INSTALL your personal lock on the Control Devices or on the "Lock-out Board" provided.

MAKE SURE that neither the lock nor the signs can be removed by another person.

FOLLOW procedures in compliance with legislated safety requirements.

☒ NEVER HAVE another person remove your padlock or block signs.

DO NOT RESTART a machine unless all the safeguards are in place.

7. Confined Space Entry

Definition

In **Canadian** federal legislation, confined space is defined as follows:

> **Confined space** means an enclosed or partially enclosed space that
>
> (a) is not designed or intended for human occupancy except for the purpose of performing work,
>
> (b) has restricted means of access and egress, and
>
> (c) may become hazardous to any person entering it owing to:
>
> (i) its design, construction, location or atmosphere,
>
> (ii) the materials or substances in it, or
>
> (iii) any other conditions relating to it;

Canada Occupational Safety and Health Regulations (SOR/86-304)

Legal definitions of confined space may vary slightly from one jurisdiction to another.

In **Ontario** occupational health and safety legislation, a confined space is defined as follows:

> **Confined space** means a space in which, because of its construction, location, contents or work activity therein, the accumulation of a hazardous gas, vapour, dust or fume, or the creation of an oxygen-deficient atmosphere may occur

[Occupational Health and Safety Act and Regulations for Industrial Establishments R.R.O. 1990, Reg. 851]

Check your OH&S legislation for the definition of confined space applicable to your workplace.

Hazards of Working in a Confined Space

Entry and working in a confined space requires special care because of the following special features:

1. Design, construction, and location can restrict movement and exit/getting out.
2. Configuration can trap a person inside.
3. Lack of ventilation can cause oxygen deficiency (less than 18% oxygen) and build up of hazardous gases such as hydrogen sulphide and methane.
4. Working inside a confined space may result in the generation of noise, hazardous gases, vapours, dusts and fumes, which may accumulate to unsafe levels.
5. Adverse psychological effects due to the feeling of being in the confined space.

Safe Work Procedures

Your employer is supposed to develop procedures for working in confined spaces. A confined space entry program includes the following elements:

- Job pre-planning
- Equipment inspection
- Identification of hazards
- Location of hazards
- Precautions and procedures for working
- Purging or ventilating prior to and during work
- Equipment for safe entry and exit
- A system to control entry by unauthorized persons
- Training on precautions and procedures for entry and work
- Arrangements for rescue
- Communication – keeping in touch with outside workers
- Secure closing of confined space entry after the work is done.

8. Toxic Chemicals

☑ MAKE SURE that you receive training in the safe use, handling, disposal and clean-up of hazardous chemicals and products.

ENSURE that all containers are properly labelled.

READ the label and be familiar with the potential hazards of the products you use.

MAKE SURE that you know where to find Material Safety Data Sheets (MSDS) for the products you use. Your supervisor should provide this information to you.

STORE chemicals and products in a designated area only.

STORE only the products you require and quantities needed for your work.

LIMIT access to main storage area and the janitorial closet.

USE gloves or other protective equipment/clothing, dust masks, and aprons as required by your employer.

FOLLOW directions given in training programs and in written personal protective equipment (PPE) program.

☒ DO NOT MIX chemicals and cleaning products unless you are sure that it is safe. For example, mixing ammonia and bleach will produce a highly toxic gas.

DO NOT LEAVE open containers of flammable products such as kerosene, paintbrush cleaner, varnish, etc.

DO NOT DISPOSE of flammables in the municipal trash. Ask your supervisor about the proper disposal procedure.

9. Painting

General

☑ FOLLOW recommended procedures for equipment and material use.

FOLLOW safety guidelines for ladders and scaffolds when working at heights.

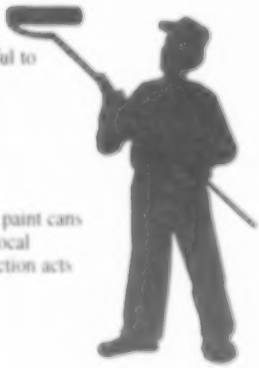
Surface Preparation

☑ WEAR appropriate respirator to prevent dust inhalation.

FOLLOW special procedures recommended for prevention of lead exposure, if lead paint is suspected.

Painting

☑ APPLY paint in a well ventilated area. Build up of paint fumes may be harmful to your health.



Disposal of Paints and Containers

☑ DISPOSE of paints and paint cans in accordance with local environmental protection acts and regulations.

10. Basic Electrical Safety

☑ INSPECT tools, power cords, and electrical fittings for damage prior to each use. Repair or replace damaged equipment.

SWITCH OFF tools before connecting them to a power supply.

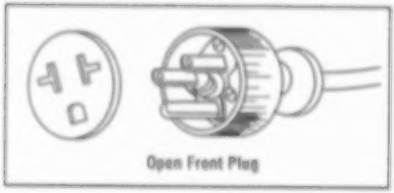
DISCONNECT power supply before making adjustments.

ENSURE that electric tools are properly grounded or double-insulated. The grounded tool must have an approved 3-wire cord with a 3-prong plug. This plug should be plugged in a properly grounded 3-pole outlet.TEST all tools for effective grounding with a continuity tester or a ground fault circuit interrupter (GFCI) before use.

KEEP power cords clear of tools during use.

SUSPEND power cords over aisles or work areas to eliminate stumbling or tripping hazards.

REPLACE open front plugs with dead front plugs. Dead front plugs are sealed and present less danger of shock or short circuit.



Open Front Plug

CHECK power cords and plugs daily. Discard if worn or damaged. Have any cord that feels more than comfortably warm checked by an electrician.

ELIMINATE octopus connections.

PULL THE PLUG, NOT THE CORD.

USE extension cords only to temporarily supply power to an area that does not have a power outlet.

ENSURE that the extension cord is adequate for the length of cord and the power (wattage) requirements of power tools, etc.

KEEP power cords away from heat, water and oil. They can damage the insulation and cause a shock.

DO NOT WEAR gloves, loose clothing or jewellery while using rotating power tools.

DO NOT BYPASS the switch and operate the tools by connecting and disconnecting the power cord.

DO NOT USE electric tools in wet conditions or damp locations unless the tool is connected to a GFCI.

DO NOT CLEAN tools with flammable or toxic solvents.

DO NOT OPERATE tools in an area containing explosive vapours or gases.

DO NOT USE light duty power cords.

DO NOT CARRY electrical tools by the power cord.

DO NOT TIE power cords in knots. Knots can cause short circuits and shocks. Loop the cords or use a twist lock plug.

DO NOT PLUG several power cords into one outlet.

DO NOT DISCONNECT power supply by pulling or jerking cord from the outlet. Pulling the cord causes wear and may cause a shock.

DO NOT USE extension cords as permanent wiring.

DO NOT ALLOW carts and trolleys to pass over unprotected power cords. Cords should be put in conduit or protected by placing planks alongside them.

11. Grounds Maintenance

General Precautions

☑ TRAIN your helpers to ensure that they can handle the tools and understand job hazards.

IDENTIFY and destroy poisonous plants such as poison ivy.

PROTECT against insects with insect repellents when needed.

REST periodically during strenuous jobs such as digging or sawing, especially in hot weather.

MAKE sure emergency numbers are clearly posted.

KNOW location of first aid kit and how to use the contents.

☒ DO NOT TOUCH stray or dead animals. Contact an animal control agency for removal.

Personal Protective Equipment

☑ WEAR high-cut safety footwear with top caps and reinforced soles.

USE approved head protection when working under low branches and falling objects.

WEAR sturdy gloves with grips.

USE vibration absorbing gloves while operating vibrating equipment.

WEAR rubber or plastic gloves when handling fertilizers and pesticides.

WEAR proper sunglasses when in direct sunlight for extended periods.

WEAR a brimmed hat and comfortable clothing that provide sun protection.

USE eye protection when power tilling, breaking up rocks or concrete, using strong cleaning agents, spraying or dusting.

☒ DO NOT WEAR loose or torn clothing.

Tools

- [x] SELECT the tool suitable:
  - for the task
  - to your body size, shape, strength

ENSURE that tools are in good repair.

FASTEN handles securely.

FINISH handle surfaces so that they are smooth.

REPAIR or replace worn or damaged handles.

KEEP cutting tools sharp.

PUT tools away when job is finished.

STORE tools where they cannot trip workers.

PROTECT cutting edges.

Refuelling Equipment

- [x] SHUT OFF engine and allow it to cool.

FILL the fuel tank before starting a job.

POSITION yourself comfortably so that you can refuel without slipping.

REMOVE the fuel cap slowly, holding it at the semi-locked position until pressure is released.

ALLOW the nozzle to empty by keeping it in the filler opening for a few moments after shutting off fuel flow.

REPLACE the fuel cap after checking to see that its venting is not clogged.

STORE fuel in sturdy, approved containers identified according to WHMIS requirements.

HAVE fire extinguishers and other firefighting equipment nearby.

DO NOT SMOKE or have an open flame while refuelling. Gas fumes are heavier than air and will drift downward from the container. The vapour, not the liquid, burns.

DO NOT SPILL any fuel on equipment. If you do, wipe up and allow any residue to dry before starting the engine.

DO NOT RUN if your clothing catches fire. STOP, DROP and ROLL. Quickly remove the blazing garment, or drop to the ground and roll slowly, or wrap yourself in a blanket.

Stop, Drop and Roll

12. Waste Disposal

☑ SEEK information/advice from your municipality and public health department regarding litter control and environmental standards.

MINIMIZE potential for environmental damage.

AVOID mixing hazardous waste with general waste materials.

MINIMIZE waste by composting vegetation waste.

AVOID burning if it will be a nuisance to nearby residents.

ENSURE that someone watches fire until it is completely extinguished.

RECYCLE paper, glass, metal and plastic products whenever possible.

☒ DO NOT BURN green vegetation, especially poison ivy or similar plants.

DO NOT BURN plastics, rubber, tires, or any other materials known to produce smoke.

DO NOT ADD any more materials that burn slowly if a fire produces dark smoke.

DO NOT THROW away excess chemicals which could contaminate streams, irrigation or drinking water.

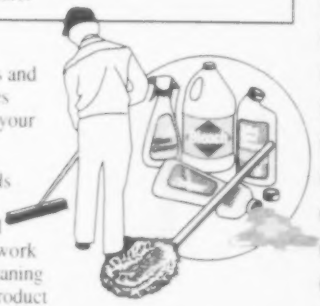
Section VIII

Sanitation and Infection Control

1. Sanitation
2. Infection from Blood and Body Fluids
3. Biohazardous Waste

1. Sanitation

It is important that all school facilities are free from garbage, debris, filth, and potentially infectious materials.



☑ FOLLOW procedures and safe work practices recommended by your employer.

CHECK product labels and MSDS to know the potential hazards and safe work practices for all cleaning and disinfecting product you use.

WEAR personal protective equipment and clothing recommended by your supervisor.

USE cleaning agents approved by the Board to ensure proper cleaning.

ALWAYS clean and wash surfaces/areas thoroughly before disinfecting them.

USE germicides or diluted bleaches (e.g. sodium hypochlorite) to disinfect areas as required.

REPORT to your supervisor all spills, accidents, incidents and other hazardous occurrences.

☒ DO NOT EAT, DRINK, or SMOKE while using a cleaning agent, bleach, disinfecting agent, or other chemical products.

DO NOT LEAVE open containers of bleaches, paints and solvents in the washrooms or other areas used by staff and students.

2. Infection from Blood and Body Fluids

Contact with blood and body fluids visibly contaminated with blood may transmit illness.

Cleaning and Decontaminating Blood-Contaminated Areas

☑ WEAR gloves and use disposable towels or other means of cleaning that will ensure against direct contact with blood and body fluids.

DECONTAMINATE the area, with an approved germicide or 1:100 solution of household bleach.

WASH and disinfect all the equipment used in the cleaning task.

DISCARD all soiled cleaning materials in a leak-proof plastic bag, according to local/public health regulations for the disposal of infectious waste.

WASH hands thoroughly with warm water and soap, after removing gloves.

CHANGE gloves after each task or exposure.

DISPOSE used gloves as contaminated materials.

Hand Washing Guidelines

☑ WASH hands regularly, especially after each exposure.

WET, SOAP and LATHER for at least ten seconds.

WASH and scrub under the nails and cuticle.

RINSE thoroughly and dry.

3. Biohazardous Waste

Occasionally, you may encounter discarded hypodermic needles, syringes, condoms, blood, objects, materials or fluids contaminated with blood and body fluids. You must exercise special precautions in handling such materials/objects. Often these biological wastes are contaminated with germs which can make you ill. Major concerns are the spread of hepatitis B and AIDS.

☑ ASK your supervisor for training to be able to:

- understand potential hazards
- be familiar with regulations

CONSIDER all biological wastes as infectious.

HANDLE all contaminated wastes carefully to prevent body contact and injury.

WEAR puncture-resistant gloves and safety boots appropriate for the situation.

DISPOSE of infectious waste in a puncture-resistant container such as a bucket or box with a secure lid and lined with leak-proof, puncture-resistant plastic.

POST a biological hazard symbol on the container.

WEAR leather gloves to empty waste paper baskets, etc., by holding container on the outside; do not handle by inserting fingers inside the container.

CALL your local public health department or police for further assistance.

☒ DO NOT LOAD the container beyond its capacity.

DO NOT COMPACT infectious waste. This process may disperse the contamination.

DO NOT MIX infectious waste with trash.

DO NOT REACH into any waste container or receptacle which may contain hazardous waste.

Section IX

Sports and Activities

1. Sports and Sporting Activities
2. Off-site Activites

1. Sports and Sporting Activities

Sports and sporting activities are known to be high risk. They can result in serious accidents to staff and students. The following guidelines are intended to prevent accidents.

- ☑ DEVELOP emergency plans with specific assigned duties and names and telephone numbers of persons to be contacted.
- CONDUCT all sports under the supervision of a competent person.
- ENSURE that first aid supplies are easily accessible and a trained first aider is always present for all trips/activities.
- CEASE outdoor activities if lightning storms occur or appear imminent.
- MONITOR students carefully when activities occur in either cold or hot conditions.
- INSTALL, maintain and inspect all equipment regularly.
- ENSURE suitable clothing is worn.
- ENSURE all sporting equipment meets the established standards.
- INSPECT equipment and play areas before each activity. Ensure that the equipment and areas continue to be safe during the activity.
- PLACE soft barriers and padded mats where falling and running into objects are likely to happen.
- CHECK regularly that all hanging objects and wall mounted gymnasium fixtures to ensure that they are well secured and inspected annually by a competent person to ensure their structural integrity.
- CLEAN all floors and ensure that they are free of hazards.
- ENSURE adequate lighting for the activity area.

STOP all activities immediately if the equipment or the area become dangerous and may likely injure someone.

PLAN activities to ensure sufficient time for pre-activity warm-up and post-activity relaxation and stretches.

Pre/Post Activity Exercises

2. Off-site Activities

☑ FOLLOW school and board policy and procedures.

OBTAIN parental consent for each student for all off-site activities.

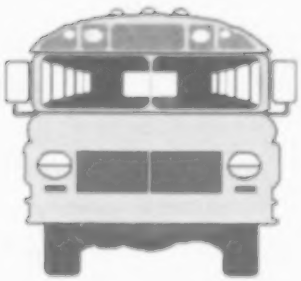
COMMUNICATE to parents and students specific expectations for all off-site activities.

PROVIDE adequate supervision for the students' activity, transportation and accommodation.

TAKE attendance and roll call regularly to ensure that all participants are accounted for during the entire trip/activity.

ENSURE that first aid supplies are easily accessible and a trained first aider is always present for all trips/activities.

DEVELOP and implement emergency plans with specific assigned duties and names and telephone numbers of persons to be contacted.



Section X

Work Environment

1. Indoor Air Quality
2. Noise
3. Ventilation
4. Lighting
5. Working in Hot Environments
6. Working in Cold Environments
7. Portable Classrooms
8. Asbestos Management
9. Ultraviolet Rays
10. Electromagnetic Radiation

1. Indoor Air Quality (IAQ)

Indoor Air Quality (IAQ) refers to the total indoor environment including:

- air contaminants entering the building with outdoor air intake by the ventilation system,
- airborne biological agents such as mould, fungi, and substances from plants,
- emissions from furniture, carpets, carpet glues, paints and varnishes,
- tobacco smoke, carbon dioxide in the exhaled air, body odours, perfumes from building occupants,
- toxic gases, vapours, fumes, etc. from laboratories, photocopiers and other processes and activities taking place inside the building, and
- indoor environment factors such as temperature, humidity, noise, lighting and air movement.

Recognition and Control of Indoor Air Problems

The best method of determining whether or not there is an indoor air problem is to ask people. A wide variety of questionnaires are available to perform occupant response survey.

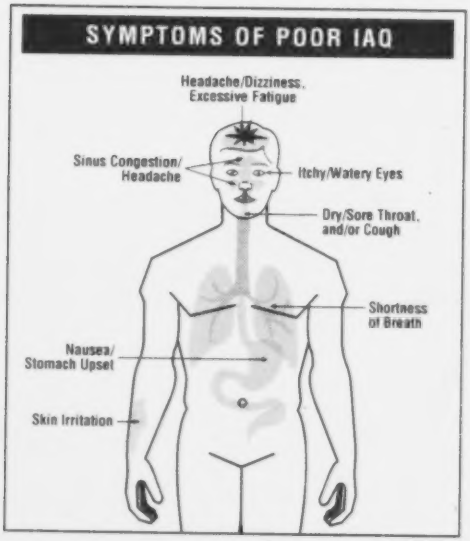
Monitoring of indoor air contaminants is needed to plan remedial action. As a starting point, one must make sure that the ventilation is adequate. This is done by measuring carbon dioxide (CO_2) level in the air. Ventilation rates required to maintain low level of CO_2 help improve the overall indoor air quality by dilution of indoor contaminants. Indoor CO_2 concentrations below 1000 ppm (parts per million) are generally accepted as a good indicator of ventilation effectiveness. The concentration of CO_2 in outdoor air is about 350 ppm.

Standard

The ASHRAE 62-1989 standard of the American Society of Heating, Refrigerating and Air-Conditioning Engineers is the most widely used standard for ventilation and indoor air quality.

Symptoms of Poor Indoor Air Quality

Health and comfort effects believed to arise from poor indoor air quality are collectively known as Sick Building Syndrome (SBS). The symptoms of SBS include headache, fatigue, dry throat, shortness of breath, skin irritation, dizziness, itchy eyes, bleeding nose and general malaise or non-specific illness.



2. Noise

People who operate noisy equipment such as tractor lawn mowers, circular saws, wood planers and vacuum cleaners are likely to be exposed to harmful levels of noise.

Noise is too loud when:

- You have difficulty talking to someone at arm's length
- You feel ringing sound in your ears after prolonged exposure
- Your hearing is numbed at the end of the work shift and comes back the next morning

Noise exposure for several years can cause permanent hearing loss which cannot be cured by medical treatment. Everyone is not equally affected. However, as the level of noise and exposure time increases more and more people are affected.

The loudness of noise is expressed as sound level in dB(A), A-weighted decibel units.

COMMON SOUND LEVELS dB(A)	
Wood hogger chipper	100 - 110 dB(A)
Power mower, snowmobile	95 - 105
Chain saw	95 - 105
Lawn mower	95 - 110
Sidewalk snowplow	90 - 100
Salt and sand truck	90 - 100
Exposure limit	**85 - 90**
Vacuum cleaner	80 - 85
Normal conversation	60 - 65
Whisper	30 - 40

Noise regulations set exposure limits at 85-90 dB(A) for an eight hour exposure, five days a week. The purpose of these limits is to prevent/minimize chances of hearing loss.

Check with your local occupational health and safety agency for the exposure limits that apply to you.

The best method of protection against noise is to use quieter machines. As an interim measure you should use hearing protection as required by your employer.

3. Ventilation

The purpose of ventilation is to control the temperature, humidity, odour, and airborne contaminants and to introduce fresh air.

Types of Ventilation

1. **Dilution ventilation** dilutes contaminant volume by bringing in outside air and exhausting used (contaminated) air.
2. **Local ventilation** exhausts the toxic gases, fumes, dust and vapours before mixing occurs. Fume hoods are the most commonly used type of local exhaust ventilation.

Dilution ventilation is used when:

- contaminant is relatively non-toxic
- there are large number of sources or mobile sources
- emission sources are widely distributed in an area
- diluted air is not contaminated

Local ventilation is used when:

- contaminant is moderately or highly toxic
- single or small number of fixed sources are present
- direct worker exposure is possible

Standard

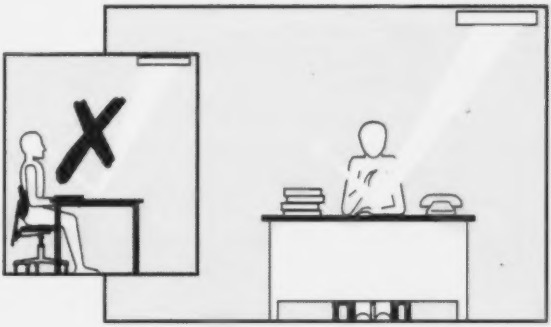
Ventilation standards are defined in building codes. The ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers) Standard 62-1989 is referenced in most building codes.

4. Lighting

☑ IDENTIFY sources of glare. Place a mirror on the desk and look for images. Bare light bulbs or bright lights reflected in the mirror cause glare.

POSITION desk with window to the side of the worker.

POSITION desk so that ceiling lights are to the sides. Avoid placing desk where light fixtures are directly in front.



USE indirect lighting to avoid shadows.

CHECK fluorescent lights for flicker. Replace fluorescent tubes regularly and maintain fixtures properly.

LOOK up and away from work frequently to rest the eyes.

WORK from good, clear copy. Higher light levels are required for poor copy.

ENSURE that storerooms, corridors and stairways are well lit.

ADJUST window blinds or drapes to control light levels and glare.

USE non-glare finishes and neutral colours on walls and furniture. The colour and finish of a surface determines how much light it reflects.

USE adjustable task lights to increase light levels when needed.

DO NOT HANG glossy pictures or objects where light will reflect into eyes.

Appropriate light levels depend on visual preferences and type of work. In the following chart, the higher ranges are for workers with poorer vision and for work requiring high speed or accuracy

APPROPRIATE LIGHT LEVELS

LOCATION	LIGHT LEVEL (LUX)
Corridors	50-150
Stairs	100-200
Coat Rooms	100-200
Stock Rooms	200-400
Traditional Office Tasks	500-750
Conference Rooms	300-750
Drawing Offices	500-1000

Check with the occupational health and safety department in your jurisdiction for regulations regarding light levels.

5. Working in Hot Environments

Working in hot environments can be uncomfortable and also, may adversely affect our health. How hot we feel depends on temperature, humidity (moisture content of the air), wind speed (air movement), and the type of work.

Humidex

In the weather forecast, the degree of environmental heat is often given in terms of humidex which is determined by taking into account the temperature and humidity of the ambient air.

HUMIDEX LEVELS

HUMIDEX RANGE	DEGREE OF COMFORT
20 - 29	Comfortable
30 - 39	Varying degrees of discomfort
40 - 45	Uncomfortable
46 and over	Many types of labour must be restricted

Potential Health Problems

Heat Stroke

The most serious heat illness is heat stroke. Signs of heat stroke include dry, hot skin due to failure of sweating and complete or partial loss of consciousness.

Heat stroke *can be* fatal and requires prompt first aid and medical attention.

Other Health Disorders

Less severe health problems include:

- **Heat edema**—swelling of the ankles.
- **Heat rashes**—tiny red spots on the skin that cause a prickling sensation during heat exposure.
- **Heat cramps**—sharp pains in muscles resulting from the failure to replace salt lost from sweat.
- **Heat exhaustion**—weakness, dizziness, visual disturbances, intense thirst, nausea, headache, vomiting, diarrhoea, muscle cramps, breathlessness, palpitations, and tingling and numbness of the hands and feet.
- **Heat syncope (fainting)**—caused by the loss of body fluids through sweating and by lowered blood pressure, due to pooling of blood in the legs while working in a standing position.

If you notice any of the above symptoms go to a cool place.

Preventing Heat Related Illnesses

- **Acclimatization**—People who work regularly in hot environments develop a certain degree of tolerance (acclimatization) for heat. Most of the acclimatization occurs in the first three or four days, and complete acclimatization may require seven to eleven days.
- **Clothing**—Loose cotton clothing provides adequate protection in hot and humid conditions.
- **Work/Rest Schedule**—A schedule of work-rest periods is generally recommended for working in hot conditions. Ask your supervisor about your board's policy in this regard.
- **Drinking Water**—You should drink plenty of cool 10°–15°C (50°–60°F) water every 15 to 20 minutes even though you may not feel thirsty. Thirst is an inadequate indicator of the body's need for water.

6. Working in Cold Environments

Working in cold weather can be dangerous to the unprepared, and to people without adequate protective clothing. Two types of cold hazards are common: hypothermia and frostbite.

Hypothermia can be fatal. It results from the cooling of the deep inner body or "core" to a temperature below 34.5°C (94.1°F) due to prolonged exposure to cold. Persons exhausted during physical work are more prone to hypothermia. The victim can become listless, confused and make little or no effort to keep warm.

The hypothermia victim should be immediately warmed, either by being moved to a warm room or by the use of blankets. In severe cases of hypothermia, immediate medical care is necessary.

Caution

Consumption of alcohol does not increase tolerance for cold. Instead, it increases the risk of hypothermia.

Frostbite is freezing of the body tissues as a result of extremely cold temperatures or contact with extremely cold metallic objects such as an automobile or a fence.

Effect of Wind

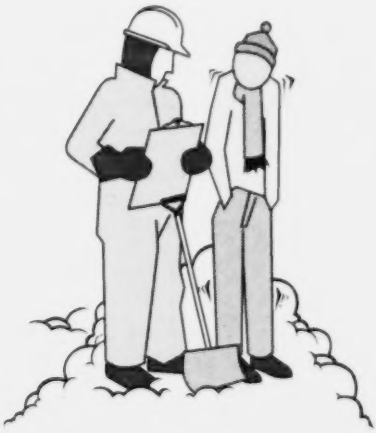
At any temperature, one feels colder when it is windy. The combined effect of cold and wind speed is expressed as "wind chill" or "equivalent chill temperature" (ECT). For exposed skin, continuous exposure should not be allowed when ECT is -32°C (-25°F) or lower.

Protective Clothing

Multiple layers of light weight loose fitting clothing provide better protection against the cold compared to single thick layer clothing. Eye protection must be separated from respiratory channels (nose and mouth) to prevent exhaled moisture from fogging and frosting eye shields. For work in wet conditions, the outer layer of clothing should be waterproof. Clothing should be kept clean. Dirt destroys its insulating ability. Clothing must be dry.

Gloves should be used below 4°C (39°F) for light work and below -7°C (19°F) for moderate work. For work below -17.5°C (0°F), mittens should be used. Felt-lined, rubber bottomed, leather-topped boots with removable felt insoles are best suited for heavy work in cold.

More than 50 percent of body heat can be lost through the head when the rest of the body is covered. A wool knit cap or a liner under a hard hat reduces excessive heat loss.



7. Portable Classrooms

Health Concerns

There are reports that students and teachers in portable class rooms experience symptoms such as:

- irritation of nose, throat and skin;
- nose bleeding, muscle aches, extreme fatigue;
- breathing problems from allergic reactions such as asthma
- cold- or flu-like symptoms: runny nose, phlegm in the throat, coughing, wheezing;
- hoarseness and sore throats;
- itchy and inflamed eyes;
- nausea, joint pain, and headaches.

People who have allergies are more likely to be affected compared to others.

Cause of Sickness

The possible cause of such sickness is believed to be poor indoor air quality and indoor air pollution. Similar illness can occur in any classroom with inadequate ventilation. Lack of adequate ventilation results in build-up of moisture, dusts, organic vapours, and emissions from the human body in the indoor air. High moisture content of the air (relative humidity) results in moulds and mildew growth. Moulds release spores into the building air. Inhalation of spore contaminated air increases the risk of allergies and other illnesses. All exposed persons are not equally affected. However, as level of air contamination and/or exposure time increases more and more people are affected.

The (Ontario) Inter-ministerial Committee on Indoor Air Quality (1987) and the ASHRAE 62-1989 standard on indoor ventilation recommend that an outdoor air supply of 15 cubic feet per minute (cfm) per occupant is necessary to provide a healthy indoor environment. This ventilation rate assumes that the outside air is evenly distributed in the room.

High density of children in the classroom, water leakage and wet clothing are the main sources of moisture in a portable classroom. Moisture condenses on walls, windows, ceiling and other surfaces and serves as a site for mould growth. Mould growth may not be visible when condensation of the moisture occurs inside the wall. Absence of water staining on walls does not necessarily rule out the presence of mould.

How To Know if A Portable Classroom Has IAQ Problems

Widespread complaints of colds, allergies, fatigue, or flu-like symptoms by teachers and students indicate potential indoor air problems. The following are typical patterns of the onset of these health problems:

- the symptoms are widespread within a class or school,
- the symptoms improve when the students or staff leave the school building for the day, and
- persons with allergies, asthma, or chemical sensitivities are affected indoors but symptoms disappear outdoors

Control Measures

Mould Removal

☑ REMOVE water-damaged wallpaper, carpeting, foam-rubber carpet pads, drapery, upholstery fabric and air filters.

CLEAN baseboards, hardwood floors, ceiling tiles, cement, wood beams, framing and roofing material.

VACUUM the entire area and immediately discard the disposable bags.

STEAM clean all carpets and dry quickly.

MINIMIZE dispersal of any mould into the air.

WEAR correctly fitted mask with a HEPA (high efficiency particulate air) filter to avoid breathing any airborne mould spores while removing moulds.

DISPOSE of the material in sealed plastic bags, and if you know that the mould is one of the toxic varieties, treat the bags like hazardous waste.

DECONTAMINATE the mouldy areas. A 10-percent solution of household bleach can be an effective disinfectant. However, it should be used only by those trained to use it safely using appropriate chemical-resistant gloves, respirator and chemical splash goggles.

SCHEDULE cleaning when the building is unoccupied to minimize the exposure of other people to airborne mould spores.

Mould Growth Prevention

☑ ENSURE there are no leaks from roofs and broken water pipes.

BLOCK OFF areas where moisture can seep through cement foundations and can dampen the floor, carpeting and walls. This will minimize condensation and indoor dampness.

ENSURE that the heating, ventilation and air conditioning system provides adequate outside air, air filtration and exhaust of air contaminants. A minimum of 15 cubic feet per minute (cfm) of fresh air per occupant should be flowing through the room at all times.

ENSURE that filters are changed or washed, and that the water reservoirs are treated or changed regularly.

USE dehumidifiers to reduce humidity to 30- 50 percent. If humidifiers are needed in winter months to overcome dry indoor air, make sure they do not use re-circulated water.

CLOSE windows tightly during winter months. Poor ventilation and poor air circulation can cause accumulation of humidity and growth of micro-organisms, including mould on window frames.

Renovations

When the renovations are being done:

☑ REPLACE the affected material,

ENSURE adequate ventilation, and

INSTALL proper air – vapour barriers.

8. Asbestos Management

Asbestos is a well known carcinogen. Exposure to asbestos has been linked to mesothelioma (a rare type of cancer of the pleura-covering of the lungs and the inner surface of the chest wall), asbestosis (scarring of the lungs), and other cancers which may appears 10–20 years or more after exposure. Identification and removal of asbestos containing materials is the best method of eliminating the risk of harmful exposures.

In the past, common uses of asbestos included:

- insulation, fire proofing, sound proofing, ceiling and floor tiles, acoustic spackles, and vinyl asbestos floor tiles;
- thermal insulation on pipes, boilers, and ceilings, fire protection on structural steel beams;
- lining of heating and ventilation duct work, window glazing, and adhesives.

Now asbestos is not used in these products but some of the older, installed products may still contain asbestos. When contained in stable solid building materials, asbestos is not released into the air and hence, does not pose health risk. Renovation work or damage to building materials can produce dry, crumbly (friable) material capable of releasing asbestos fibres in the air. Airborne asbestos fibres enter the lungs with the inhaled air. Specific procedures and precautions have been developed to prevent the release of asbestos fibres in the air. Extreme caution is necessary to protect children from asbestos exposure.

The US government has adopted the Asbestos Hazard Emergency Response Act (AHERA–40 CFR 763) in 1987. In Canada, guidelines are available from school boards and the government health and safety departments. In consultation with the health and safety committee, each school should establish their own asbestos management plan. The following is a general outline of the actions recommended to control asbestos exposure:

- [x] ARRANGE inspection by a qualified person to identify asbestos containing materials in the school.

- [ ] IDENTIFY type and location of all asbestos containing materials present in the school.

- [ ] MAINTAIN an inventory of all asbestos containing materials by location. This inventory should be used by the school maintenance staff repair workers performing work on or near asbestos-containing materials.

- [ ] ESTABLISH an asbestos management plan and strategy.

- [ ] POST warning signs in all routine maintenance areas to inform maintenance personnel that asbestos is present in the school.

- [ ] ASSIGN responsibility to supervise the implementation of the asbestos management plan.

- [ ] TRAIN the custodial staff in asbestos awareness and safe work practices.

- [ ] ESTABLISH a procedure for reporting damaged or exposed materials that may cause asbestos exposure.

- [ ] ESTABLISH procedures for proper removal and disposal of asbestos containing materials and ensure that all employees understand and follow these procedures.

- [ ] NOTIFY utility workers and other personnel working in areas where asbestos containing material is present.

For Additional Information

1. Contact the **CCOHS Inquiries Service**
   Phone: 1-800-263-8466 (Toll free)
   E-mail: inquiries@ccohs.ca
   Web Site: http://www.ccohs.ca
2. **Government of Manitoba**
   Web Site: http://www.gov.mb.ca (*search for* Asbestos in Schools)
3. **US Environmental Protection Agency (EPA)**
   Web Site: http://www.epa.gov (*search for* Asbestos Management)

9. Ultraviolet Rays

In summer months, outdoor work may cause damage to the skin and eyes due to ultraviolet (UV rays) radiation exposure. UV rays are an invisible part of sunlight. Besides direct exposure to sunlight, harmful UV ray exposures are possible due to reflections from water, sand and concrete.

Effect on the Skin

UV rays cause darkening of the skin, skin burns and erythema (reddening of the skin). Prolonged exposure increases the risk of skin cancer.

Certain substances increase the risk of damage due to UV radiation. These are known as photosensitizing agents. Such agents include certain medications, tranquilizers, cosmetics, plants, weeds and coal-tar creosote. If you are using medication consult your doctor regarding the possibility of photosensitizing action. In any case, take steps to decrease exposure to UV rays.

Effect on the Eyes

The eyes are particularly sensitive to UV radiation. A short exposure can cause pain and temporary effects such as watering and blurred vision.

UV Index

The Environment Canada weather forecast service rates the UV intensity as UV index on a scale of 0 to 10. The implications of the UV index are summarized in the following table.

IMPLICATIONS OF THE UV INDEX

UV INDEX	CATEGORY	TIME OF YEAR*	IMPLICATIONS
>9	Extreme	May to mid mid-August	Sunburns and skin damage can occur in less than 15 min. Minimize exposure. Take full precautions.
7 to 9	High	May to mid-August	Sunburns and skin damage can occur quickly. Minimize exposure to sun if possible. Take full precautions.
4 to 7	Moderate	Spring and early Fall	Take precautions to limit exposure to the sun. Moderate periods in the sun may still cause burning.
<4	Low	Fall and Winter	Minimal precautions necessary for normal activity. Long periods in the sun may still cause skin damage.

*Over Southern Canada

The following practices are recommended to minimize UV exposure when working outdoors:

- Avoid midday sun (10:00 am–3:00 pm).
- Wear clothing that is tightly woven to block sunlight.
- Wear a broad-brimmed hat that will shade your face, neck and ears.
- Apply waterproof sunscreen with a sun protection factor (SPF) of 15 or higher to all exposed skin.
- Wear UV filtering sunglasses.

10. Electromagnetic Radiation

Computer monitors, commonly known as video display terminals (VDT) emit electromagnetic radiation in two frequency ranges—extremely low frequency (ELF) and very low frequency (VLF). The source of ELF radiation is the electrical power supply to the VDT. The frequency of ELE radiation is the same as the frequency of electric power which is 60 cycles per second or 60 Hz in North America and 50 Hz in Europe. The source of VLF radiation is the electronic components that produce pictures and letters on the VDT screen. The VLF radiation from a VDT is in the 15-30 thousand Hz range.

There have been numerous studies to investigate a possible link between VDT use and adverse health effects, mainly on effects on pregnancy. Results obtained to date have not provided conclusive evidence of association between VDT use and adverse health effects.

The American Conference of Governmental Industrial Hygienists (ACGIH), Health Canada and several other expert organizations have recommended exposure limits for electromagnetic radiation. These exposure limits are intended to prevent immediate health effects due to currents induced in the body by the external electromagnetic radiation. The levels of electromagnetic radiation form a VDT are far lower than these recommended exposure limits.

There are no exposure limits applicable to long-term effects such as adverse pregnancy outcome because there are no dose-response data for such effects. In view of the scientific uncertainty, prudent avoidance is often advised. This is achieved by reducing exposure time and keeping a good distance from the monitor. Both ELF and VLF radiation levels rapidly decrease as distance from the monitor increases. At about one arm length distance from a VDT, the electromagnetic field is extremely low.

Section XI

Ergonomics

1. Repetitive Motion Injuries (RMIs)
2. Computer Workstations
3. Working in a Sitting Position
4. Chair and Work Surface Adjustment
5. Workstation Exercises

1. Repetitive Motion Injuries (RMIs)

Repetitive motion injuries (RMI) are injuries of the muscles and joints in the body. These are also known as musculoskeletal injuries (MSI), culmulative trauma disorder (CTD) and work-related musculoskeletal disorder (WMSD).

Contributing factors to RMI problems are:

- static body positions which cause muscle tension, require energy, and reduce the flow of blood to the muscles.
- repetitive motions which cause tiredness, pain and possible overuse injuries.
- uncorrected vision, glare or shadows which force workers to use awkward body positions to see work properly.
- workstations which are too high or low and have needed objects placed too far away from workers.
- improperly adjusted chairs which place pressure on the underside of the legs, back of knees and impair blood circulation.
- hard floors which cause feet and legs to ache if workers walk or stand for long periods.

Preventing Repetitive Motion Problems

The key to preventing RMI is to avoid long periods working in one position and repeating the same motions.

☑ ENSURE that chairs and work surfaces are adjusted properly and there is enough space to work in a comfortable position.

ELIMINATE glare by properly positioning lights and desks.

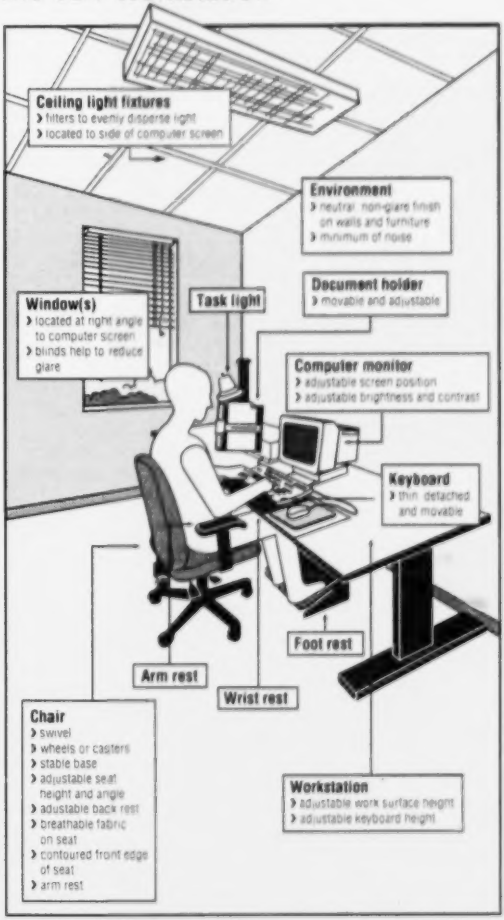
ELIMINATE shadows by using task lamps.

ADJUST window curtains and blinds as conditions vary through the day.

VARY tasks to change body position and mental activities. Good work/rest schedules help.

PLACE frequently used items within easy reach. Store infrequently used items farther away.

The VDT Workstation



2. Computer Workstations

Computer workstations must be adjustable to accommodate the individuals using them. Use the following checklist to identify possible problems at computer workstations.

Sample

COMPUTER WORKSTATION CHECKLIST

Date_____ **Workstation No.** _____

Inspector(s)

✔ *Satisfactory* ✗ *Unsatisfactory, requires attention*

ITEM	INSPECT FOR...
COMPUTER EQUIPMENT	
Keyboard	❑ spacebar not higher than 6.5 cm (2.5 in) above work surface ❑ directly in front of operator (if used primarily for text entry) ❑ detachable and moveable ❑ forearm and upper arm form 80°–100° angle with upper arm almost vertical. ❑ wrist relaxed, not bent wrist rests provided.
Monitor	❑ top of screen is about eye level. ❑ viewing distance is 30-60 cm. (12 in. to 24 in.) ❑ free of glare or shadows. ❑ sharp, easy-to-read images that do not flicker. ❑ located away from, or at 90° angle to windows
WORKSTATION	
Chair	❑ adjusted to make height suitable for the individual and work surface ❑ adjusted so no pressure on backs of legs. ❑ adjusted so feet flat on floor (or foot rest used) ❑ 5 wheels or castors (suitable for floor surface)

ITEM	INSPECT FOR...
WORKSTATION cont.	
Chair *cont.*	❑ swivel base ❑ adjustable from sitting position ❑ breathable upholstery fabric
Backrest	❑ adjustable for both height and angle ❑ supports inward curve of the lower back
Work Surface	❑ adjustable height ❑ sufficient leg room to change position of legs (without getting up) ❑ sufficient to hold work materials ❑ frequently used items close by operator ❑ infrequently used items stored away
VISUAL ENVIRONMENT	
Lighting	❑ does not produce glare or shadows on screen ❑ allows worker to read characters easily on screen and source document ❑ ceiling flourescents oriented lengthwise to sides of computer, fitted with diffusers or parabolic louvres ❑ adjustable task lights available over source doc uments ❑ room lighting is uniform and slightly dimmer than usual office lighting ❑ general work areas have indirect or diffuse lighting
Miscellaneous	❑ wall colour neutral, not too bright ❑ Shiny surfaces and objects are covered or removed ❑ windows have blinds or curtains to prevent glare
Notes	

3. Working in a Sitting Position

"Good" Body Position

There is no *one single body position* recommended for sitting.

Every worker can sit comfortably by adjusting the angles of the hips, knees, ankles and elbows.

The following are general recommendations. Occasional changes beyond given ranges are acceptable and sometimes beneficial.

☑ KEEP the joints such as hips, knees and ankles open slightly more than 90°

KEEP the upper body within 30° of upright positions.

ALWAYS keep the head aligned with the spine.

KEEP upper arms vertical to 20° forward.

KEEP elbows at an angle between 90° and 120°.

KEEP forearms between horizontal and 20° up.

SUPPORT the forearms.

KEEP the wrists straight and aligned with the forearms.

PLACE the working object so that it can be seen at viewing angle of 10° to 30° below the line of sight.

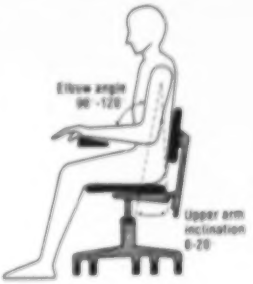
KEEP shoulders low and relaxed.

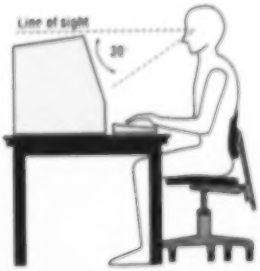
KEEP elbows tucked in.

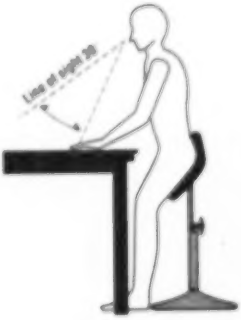
TUCK chin in and do not bend forward when looking down and forward.

CHANGE positions frequently within recommended ranges.

CROSS legs alternately.







AVOID side bending.

AVOID forward bending.

DO NOT SLOUCH.

DO NOT SIT for more than 50 minutes at a time.

What to Avoid While Sitting

Poor arrangement of the workstation fosters an awkward/poor body position. Poor body position hinders breathing and blood circulation and contributes to injuries affecting people's ability to move.

AVOID sitting on a chair that is too high.

AVOID bending the head forward. This prevents neck injury.

AVOID sitting without lumbar support. This prevents back pain.

AVOID working with arms raised. This prevents neck and shoulder pain.

AVOID bending wrists. This prevents muscle cramps.

AVOID working with unsupported forearms. This prevents shoulder pain.

AVOID cramming thighs under worktable. This reduces blood circulation.

AVOID working with legs dangling. This destabilizes the body and causes tiredness.

AVOID pressure on underside of thighs. This reduces back flow of blood and can cause swelling legs.

AVOID sitting on a chair that is too low.

- It disrupts blood circulation in lower legs, causing swelling.
- It puts pressure on internal organs.
- It creates too much pressure on buttocks and causes discomfort.

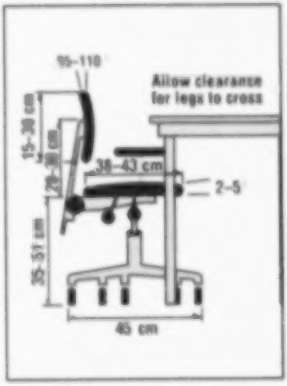
DO NOT WORK with a worktable that is too high.

- It prevents use of proper lumbar support and can cause back injury.
- It overstretches spine and can cause back injury.
- It forces the head to bend forward and can cause neck injury.
- It stresses shoulders and causes pain.
- It tires the whole body.

DO NOT SIT on a chair that has poor support. It can overturn, injuring you.

4. Chair and Work Surface Adjustment

Chairs



☑ CHOOSE a chair with:

- a backrest which is shaped to support the lower back
- a seat height and depth which does not put pressure on back of thighs or knees
- a seat that curves downwards at the front edge
- a stable base
- a swivel mechanism
- arm rests which do not prevent the chair from being drawn up to the work surface or interfere with natural movement
- breathable fabric on the seat
- controls that can be used while seated

TIGHTEN the chair backrest so that it does not give way with body weight.

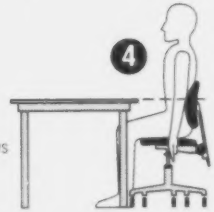
READJUST the chair throughout the day to help vary body position.

Chair and Work Surface Adjustment

1. **STAND in front of the chair.** Adjust the height so the highest point of the seat is just below the knee cap.

2. **SIT so that the clearance** between the front edge of the seat and the lower part of the legs just fits a clenched fist.

3. **ADJUST the backrest** of the chair so that it supports the V-hollow of the lower back.



4. **ADJUST the work surface** to the height of the elbows with the arms hanging straight by the sides.

5. **RAISE the chair** to get the proper arm and upper body position if using a fixed height work surface.

6. **ADJUST the chair height** so elbows are about the same height as the work surface.

7. **USE a foot rest** if feet cannot rest flat on the floor or if there is pressure on the back of the legs. The foot rest should be adjustable and support the whole foot.

Work Surface

☑ MAKE adjustments so work surface is the correct working height.

ENSURE that the work surface is large enough to hold materials.

STORE frequently used items in the most convenient place.

☒ AVOID cramping legs under work surface.

AVOID over-reaching and twisting.

DO NOT STORE materials under the work surface.

5. Workstation Exercises

Neck and Shoulders

1 SHOULDER SHRUG

Raise the top of your shoulders toward your ears until you feel slight tension in your neck and shoulder. Hold this feeling of tension for 3-5 seconds, then relax your shoulders downward into their normal postion. Repeat 2-3 times.

2 HEAD GLIDE

Sit or stand upright. Without lifting chin, glide head straight back. Hold for 20 counts and repeat 5-10 times.

3 NECK RELAXER

Drop your head slowly to the left, trying to touch your left ear to your left shoulder. Repeat on the right side. Slowly drop your chin to your chest, turn your head all the way to the left, and then to the right.

4 SHOULDER ROLL

Roll the shoulders—raise them up, pull them back, then drop them down and relax. Repeat in the opposite direction.

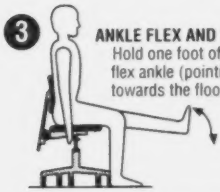
Back, Sides and Legs

1 BACK/SIDE STRETCH

Drop left shoulder reaching left hand toward the floor. Return to starting position. Repeat on right side.

BACK CURL

Grasp shin, lift leg off the floor. Bend forward, (curling the back) reaching nose toward the knee. Repeat with the other leeg.



ANKLE FLEX AND STRETCH

Hold one foot off the floor, leg straight. Alternately flex ankle (pointing toes up). Extend (pointing toes towards the floor). Repeat with the other leg.

TOE-IN, TOE-OUT

Place feet shoulder-width apart, heels on the floor. Swing toes in then out.

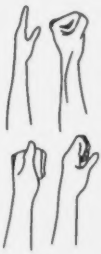
TALL STRETCH

Interlock fingers, palms up. Stretch arms above the head until they are straight. DO NOT ARCH the back.

LEG LIFT

Sit forward on the chair so that your back is not touching the chair back. Place feet flat on the floor. With a straight leg, lift one foot a few inches off the floor. Hold momentarily, return it to the floor and repeat with the other leg.

Hands and Forearms



1 PALM AND FINGERS STRETCH

1. Start with hand outstretched.
2. Make a fist. Keep your thumb straight and not tucked under your fingers.
3. Touch your fingertips to the base of your palm, keeping your thumb straight.
4. Slide your finger tips up your plam so the tips of your fingers are near the base of your fingers and you feel a stretch. Don't force your fingers with your other hand if something hurts.

2 WRIST STRETCH

Gently bend wrist from side to side as far as possible. Hold 3-5 seconds. Repeat 3 times.

3 HAND ROTATION

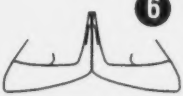
Start with arm in hand-shaking position and slowly rotate palm down until you feel a stretch. Hold 3-5 seconds. Rotate palm up until you feel a stretch. Repeat 3 times.

4 WRIST FLEXION

Keeping elbow straight, grasp involved hand and slowly bend wrist down until you feel a stretch. Hold 3-5 seconds. Relax. Repeat 3 times.

5 WRIST EXTENSION

Grasp your hand and hold your fingers with the other hand. Slowly bend your wrist down until you feel a stretch. Hold 3-5 seconds. Relax. Repeat 3 times. Then slowly bend your wrist up until you feel the stretch. Hold and relax as above.



6 FOREARM STRETCH

Sitting with your elbows on a table and palms together, slowly lower wrists to table until you feel a stretch. Be sure to keep palms together throughout the stretch. Hold 5-7 seconds. Relax. Repeat 3 times.

Section XII

Personal Protective Equipment

1. General Guidelines
2. Safety Glasses
3. Safety Footwear
4. Safety Headwear
5. Hearing Protection
6. Hand Protection
7. Respirators

1. General Guidelines

Any personal protective equipment (PPE) should meet standards that are specified in OH&S legislation such as CSA (Canadian Standards Association) in Canada and ANSI (American National Standards Institute) in the US. You should consult your OH&S legislation to determine applicable standard.

Hard Hats

Wear CSA or ANSI approved hard hats when:

- working on or near construction projects,
- trimming trees, and
- doing any work that has potential for head injury.

Safety Glasses and Goggles

Wear CSA or ANSI approved safety glasses/goggles that are appropriate for protecting the eyes from:

- extremely bright light and ultraviolet radiation (UV rays),
- flying objects, and
- very hot, poisonous, and irritating liquids.

Ear Plugs or Muffs

Wear appropriate ear protection to protect ears from excessive noise exposure.

Respirators

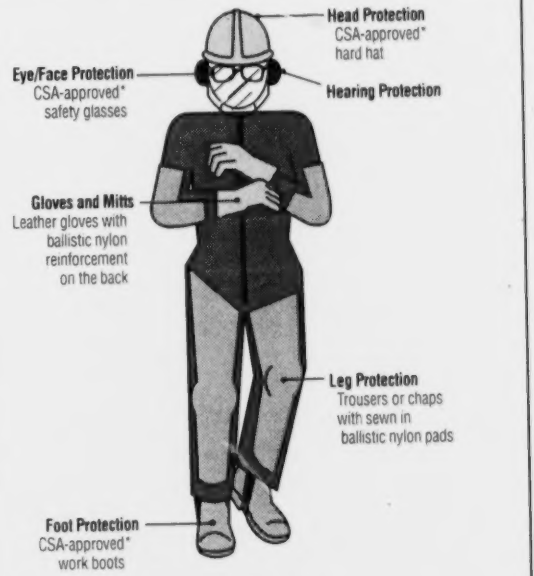
Wear respirators as required by your employer while working in an environment where there is danger of breathing air contaminated with toxic gases, vapours, fumes and dusts.

Safety Footwear

Wear safety footwear with metal box toe and puncture resistant sole while doing grounds keeping or maintenance work.

Gloves

Wear appropriate type of gloves when working with chemicals, solvents, or toxic substances as well, to protect hands from flying objects and from contact with vibrating machines.



* In the US use personal protection approved by an appropriate authority such as NIOSH, OSHA, ANSI. If in doubt, ask your nearest OSHA office.

2. Safety Glasses

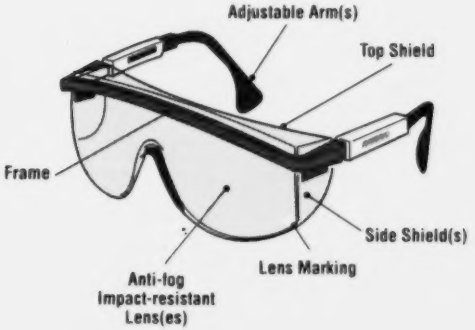
Selection of Safety Glasses

Lenses CSA Z94.3/ANSI Z87.1-certified safety glasses have glass, plastic or polycarbonate lenses. They are stronger than regular lenses, are impact-resistant, and come in prescription and non-prescription (plano) forms.

Lense Markings The manufacturer's logo is marked (or etched) on all approved safety lenses.

Frames Safety frames are stronger than street-wear frames and often heat resistant. They are designed to prevent lenses from being pushed into the eyes.

Frame Imprint All CSA-certified safety frames have the imprint "Z94.3" stamped on them and may have CSA logo imprinted on the temple.



Correct Fit of Safety Glasses

☑ ENSURE your safety glasses fit properly. Eye size, bridge size and temple length all vary, so safety glasses need to be individually assigned and fitted.

WEAR safety glasses so that the temples fit comfortably over the ears. The frame should be as close to the face as possible and adequately supported by the bridge of the nose.

Proper Care of Safety Glasses

Safety glasses need maintenance.

☑ CLEAN your safety glasses daily with recommended lens cleaning material. Follow the manufacturer's instructions. Avoid rough handling which can scratch lenses. Scratches impair vision and can weaken glass lenses.

STORE your safety glasses in a clean, dry place where they cannot fall or be stepped on. Keep them in a case when they are not being worn.

REPLACE scratched, pitted, broken, bent or ill-fitting glasses. Damaged glasses interfere with vision and do not provide adequate protection.

3. Safety Footwear

Safety footwear is designed to protect feet against a wide variety of injuries. Impact, compression and puncture are the most common types of foot injury.

☑ CHOOSE footwear according to the hazard. Refer to CSA Standard Z195 "Protective Footwear" or ANSI Z41 in the US.

SELECT CSA-certified footwear. Ensure that it has the proper rating for the hazard and the proper sole for the working conditions.

WALK in new footwear to ensure it is comfortable.

LACE up boots fully. High-cut boots provide support against ankle injury.

USE a protective coating to make footwear water-resistant.

USE metatarsal protection (top of the foot between the toes and ankle) where there is a potential for injury.

INSPECT footwear regularly for damage.

REPAIR or replace worn or defective footwear.

Suggested Protective Footwear

Grade I will withstand 50 lb weight dropped from a height of 22 in.

green

This grade of boot is suitable for workers in the following fields:

- freight companies
- steel mills
- construction
- mining
- auto industries
- paper mills
- lumbering

Grade II will withstand a 50 lb weight dropped from a height of 16 in.

yellow

This grade of boot is suitable for workers in the following fields:

- warehousing
- machine shops
- auto industries
- aircraft industries
- paint companies
- home appliances
- fire department

Grade III will withstand 50 lb weight dropped from a height of 10.5 in.

red

This grade of boot is suitable for workers in the following fields:

- light manufacturing
- retail stores
- supervision
- office
- hospitals
- service stations
- security
- ambulance staff

4. Safety Headwear

Headwear consists of a shell and the suspension. These work together as a system and both need regular inspection and maintenance.

☑ CHOOSE the correct headwear for the job. Refer to ANSI Standard Z89.1 (1997) or CSA Standard Z94.1, *Industrial Protective Headwear*.

Protective headwear are of the following two types:

Type I Hat (full brim)
Type II Cap (with or without peak)

Protective headwear (safety hats and caps) are classified as follows:

Type A General Use, Limited Voltage Protection
Type B High Voltage Protection
Type C General Use, Metallic No Voltage Protection
Type D Impact and Penetration Protection

INSPECT headwear before each use

CLEAN the suspension and shell regularly.

☒ DO NOT TRANSPORT headwear in rear windows of vehicles.

Shell

The shell is rigid and light, and is shaped to deflect falling objects. Correct maintenance is important.

☑ INSPECT and replace a shell that shows signs of wear, scratches or gouges. A shell exposed to heat, sunlight and chemicals can become stiff or brittle.

REPLACE headwear when hairline cracks start to appear. These cracks will spread and widen.

REPLACE headwear that has been struck, even if no damage is visible.

REMOVE and destroy any headwear if its protective abilities are in doubt.

DO NOT DRILL holes, alter or modify the shell. Alterations may reduce the protection provided by the headwear.

DO NOT PAINT the plastic shell. Paint solvents can make plastic headwear brittle and more susceptible to cracks. Instead, use reflective marking tape to make number or symbols for identification purposes. Metal headwear may be painted.

DO NOT USE winter liners that contain metal or electrically conductive material.

DO NOT USE metal labels on Class B headwear.

DO NOT DRAW chin strap over brim or peak of Class B headwear.

Suspension

The suspension system holds the shell away from the head and acts as a shock absorber. It also holds the shell in place on the head and allows air to flow freely.

ADJUST headband size so that headwear will stay on when wearer is bending over, but not so tight that it leaves a mark on the forehead.

ENSURE that the suspension is in good condition. The main purpose of the suspension is to absorb energy.

LOOK closely for cracked or torn adjustment slots, frayed material or other signs of wear.

CHECK suspension lugs carefully. Perspiration and hair oils can cause wear. Long periods of normal use can damage the suspension.

REPLACE suspension that has torn or broken treads.

DO NOT PUT anything inside headwear. There must be a clearance inside the headwear while it is being worn. In the event of a blow to the head, that space helps absorb the shock.

5. Hearing Protection

Hearing protectors reduce the amount of sound energy reaching the ears and hence, reduce the risk of hearing loss.

☑ SELECT hearing protection that is correct for the job. Refer to CSA Standard Z94.2 *Hearing Protectors* or ANSI Standard S12.6.

Earplugs are inserted to block the ear canal. They may be premoulded (preformed) or mouldable.

Canal Caps are comprised of two ear plugs held over the ends of the ear canal by a rigid headband.

Ear muffs are comprised of hard outer cups, sound-attenuating material and soft ear cushions which fit around the ear and hard outer cups. They are held together by a head band.

☒ DO NOT USE radio headsets as a substitute for hearing protection.

DO NOT MODIFY hearing protectors.

Proper Care of Hearing Protection

☑ REFER to manufacturer's instructions.

CHECK hearing protection regularly for wear and tear.

REPLACE ear cushions or plugs that are no longer pliable.

REPLACE unit when head bands are so stretched that they do not keep ear cushions snugly against the head.

DISASSEMBLE ear muffs to clean.

WASH hearing protectors with a mild liquid detergent in warm water, and then rinse in clear warm water.

ENSURE that sound-attenuating material inside cushions does not get wet.

Proper Fit of Hearing Protection

☑ FOLLOW manufacturer's instruction.

ENSURE hearing protector is tightly sealed within the ear canal or against the side of the head.

HEARING PROTECTION

EAR PLUGS	EAR MUFFS
Advantages	***Advantages***
• Small and easily carried. • Convenient to use with other personal protective equipment (can be worn with earmuffs). • More comfortable in hot, humid work areas. • Convenient for use in confined work areas.	• Designed so that one size fits most head sizes. • Easily seen at a distance to assist in the monitoring of their use. • Not easily misplaced or lost. • May be worn with minor ear infections.
Disadvantages	***Disadvantages***
• Require more time to fit. • More difficult to insert and remove. • Require good hygiene practices. • May irritate the ear canal. • Easily misplaced. • More difficult to see and monitor usage.	• Less portable and heavier. • Less convenient for use with other personal protective equipment. • Less comfortable in hot, humid work areas. • Less convenient for use in confined work areas.

6. Hand Protection

Hands are the most vulnerable to injury from accidental contact with tools, machines, chemicals, and hot and cold objects. In some circumstances gloves may provide adequate hand protection. Barrier creams are used in situations where use of gloves is not practicable for protection against chemical exposure.

Gloves

Selection of gloves depends on the type of exposure. Different types of gloves are available to provide protection against different types of exposure. Consider all potential exposures when selecting gloves. Check MSDS of chemicals to determine suitable gloves. Consult local safety supplier to select from available types of gloves.

Protective Creams

Barrier creams may be used for protection against chemicals, solvents, fumes, dusts and micro-organisms in cases where all other methods of protection are impractical. The application of barrier cream before starting the work provides a protective layer which limits the contact between the hand and the hazardous substances.

The advice of a specialist should be sought in the selection and correct use of a barrier cream which will provide best protection.

7. Respirators

A respiratory could save your life or prevent serious illness or disease. However, in schools dust masks will probably be the most commonly used respiratory protective device (eg. in wood working shop).

General

- ☑ FOLLOW the respirator protection program developed by your employer/supervisor, including training and fit testing.
- USE the type of respirator as prescribed by your employer/supervisor.
- INSPECT before and after each use and during cleaning.
- INSPECT equipment designated for "emergency use" at least monthly, in addition to after each use.
- REPLACE all parts that are cracked, torn, broken, missing or worn.
- FOLLOW manufacturer's instruction and CSA Standard Z94.4 or ANSI Z88.2 for care and maintenance.

The following sections apply to respirators other than dust masks.

Facepiece

- ☑ ENSURE that there are no holes or tears.
- INSPECT for cracked, scratched or loose-fitting lenses. For full facepiece, check for missing mounting clips.
- ENSURE that metal nose clip forms easily over the bridge of the nose on disposable respirators.

Headstrap/Harness

- ☑ CHECK webbing for breaks.
- LOOK for deterioration of elasticity.
- TEST excessively worn head harness.

Inhalation and Exhalation Valves

☑ ENSURE valve and valve seat are free of detergent residue, dust particles, or dirt which may cause a poor seal or reduce efficiency.

REPLACE missing or defective valve cover.

Filter Element

☑ ENSURE that filter and mask are certified for use together.

CHECK filters to see that they are approved for the hazard.

INSPECT both filter threads and facepiece threads for wear.

CHECK filter heads for cracks or dents.

CHECK end of service life indicator on gas masks. Check expiration date.

Repair, Cleaning and Storage

☑ FOLLOW manufacturer's instructions.

WASH with a mild dish detergent or a combination of detergent and disinfectant. Use a brush and warm water (49–60° C).

RINSE with clean water, or rinse once with a disinfectant and once with clean water. The clean water rinse removes excess detergent or disinfectant that can cause skin irritation or dermatitis.

DRY on a rack, clean surface or hang from a clothes line. Position the respirator so that the facepiece rubber will not "set" crookedly as it dries.

STORE respirator at the end of each shift to protect it from dust, sunlight, heat, extreme cold, excessive moisture, and chemicals.

CLEAN and disinfect shared respirators after each use.

PERMIT only trained and qualified personnel to repair respirators.

RECORD repairs and/or inspections.

CHECK for distortion caused by improper storage.

☒ DO NOT CLEAN with solvents.

DO NOT MIX parts from different manufacturers.

Section XIII

Health and Safety Legislation

1. Legislative Responsibilities in Schools
2. Canadian OH&S Legislation
3. Workplace Hazardous Materials Information System (WHMIS)
4. Material Safety Data Sheets (MSDS)
5. Public Health Promotion Legislation
6. Fire Code
7. Building Code
8. Environmental Protection Legislation
9. US OH&S Legislation

1. Legislative Responsibilities in Schools

The legislation applicable to schools prescribe general and some specific safety responsibilities and cover all occupants which includes students, staff, Board staff, and visitors. The safety responsibilities include the following:

School Board/Trustees

- ☑ ESTABLISH fire drills and emergency procedures.
- MAINTAIN school buildings, furniture and equipment in proper repair.
- OBTAIN adequate insurance for building, equipment, employees, and volunteers while under the jurisdiction of the Board.
- DEVELOP a policy statement that includes safe school plans.
- ENSURE a safe and peaceful school.
- ASSIGN responsibilities.
- MONITOR compliance.
- PROVIDE training.
- INVESTIGATE incidents of unsafe conditions, violence and vandalism.
- DEVELOP corrective action plans.

Director of Education/Supervisory Officer

- ☑ SUPERVISE the use and maintenance of the building and property of the School Board.
- VISIT schools and classrooms as the school board may direct.
- ASSIST eachers to bring about improvement in the quality of education.
- MAKE SURE that the schools are conducted in compliance with the Education Act and Regulations.

PREPARE an annual report on the performance of the schools in his/her jurisdiction.

REPORT to the appropriate medical officer any unsanitary conditions in the building or premises.

FURNISH the minister with required information about schools in his/her jurisdiction.

Principal

☑ CONDUCT fire drills and emergency training during the school year.

INSPECT the school and report on its condition and required maintenance and alterations.

BE RESPONSIBLE for the health, safety and comfort of the pupils and staff.

INSPECT the school premises weekly and make recommendations to the Board regarding repairs, maintenance and alterations.

REPORT to the Board and the Ministry of Health any suspected cases of communicable diseases.

PROVIDE training in safe work practice.

Teacher In Charge of Organizational Unit

☑ ASSIST in planning and organizing emergency drills.

ASSIST in the organization and management of the school.

ASSIST principal in adequate supervision of the pupils.

MAINTAIN equipment and supplies.

Teacher

☑ MAINTAIN order and discipline in the class.

PROVIDE effective instruction, training and evaluation.

BE RESPONSIBLE for student supervision.

BE RESPONSIBLE for safety.

2. Canadian OH&S Legislation

The purpose of Occupational Health and Safety (OH&S) legislation is to protect you, the employee, against hazards on the job. It outlines the general rights and responsibilities of the employer, the supervisor and the employee.

The law makes both you and your employer jointly responsible for workplace health and safety legislation.

What Does the OH&S Legislation Say?

Each of the provinces and the federal government have their own OH&S legislation. The details of the OH&S legislation vary slightly from one jurisdiction to another but the basic elements are the same.

Most Canadian jurisdictions have a general duty provision in their OH&S legislation which requires employers to take all reasonable precautions to protect the health and safety of employees.

Government's Responsibilities

Government is responsible for ensuring compliance with health and safety legislation. Responsibilities of government include:

i) to develop and enforce occupational health and safety legislation regarding workplace inspections

ii) to designate safety officers who conduct workplace inspections to ensure compliance with the legislation

iii) to disseminate information

iv) to promote training, education and research

v) to take action in case of noncompliance

Employee's Rights

i) to refuse unsafe work

ii) to participate in workplace health and safety activities through the Joint Health and Safety Committee (JHSC) or an employee health and safety representative

iii) to know actual and potential dangers in the workplace

Employee's Responsibilities

i) to work in compliance with the OH&S act and regulations

ii) to use personal protective equipment and clothing as directed by the employer

iii) to report workplace hazards and dangers

Supervisor's Responsibilities

i) to ensure that employees use prescribed protective equipment

ii) to advise employees of potential and actual hazards

iii) to take every reasonable precaution in the circumstances for the protection of employees

Employer's Responsibilities

i) to establish and maintain a joint health and safety committee, or cause employees to select at least one health and safety representative

ii) to take every reasonable precaution to ensure the workplace is safe

iii) to inform employees about any potential hazards and provide training to work safely

iv) to provide personal protective equipment and ensure workers know how to use the equipment safely and properly

v) to immediately report all critical injuries to the government department responsible for OH&S

vi) to train all employees on how to safely use, handle, store and dispose of hazardous substances and handle emergencies

Joint Health and Safety Committee (JHSC)

i) must be composed of management and employee representatives

ii) at least half the members of the committee must be employee representatives

iii) must meet at least once every 3 months; 1 month in some jurisdictions

iv) must be co-chaired by one management chairperson and one employee chairperson

v) employee representatives are elected or selected by the employees or their union

Role of the Joint Health and Safety Committee

i) to act as an advisory body

ii) to identify hazards and obtain information

iii) to recommend corrective actions

iv) to assist in resolving work refusal cases

v) to participate in accident investigations and workplace inspections

Work Refusals

You can refuse work if you have reason to believe that the situation is unsafe to either yourself or your co-workers.

i) You must report to your supervisor that you are refusing to work and state why you believe the situation is unsafe.

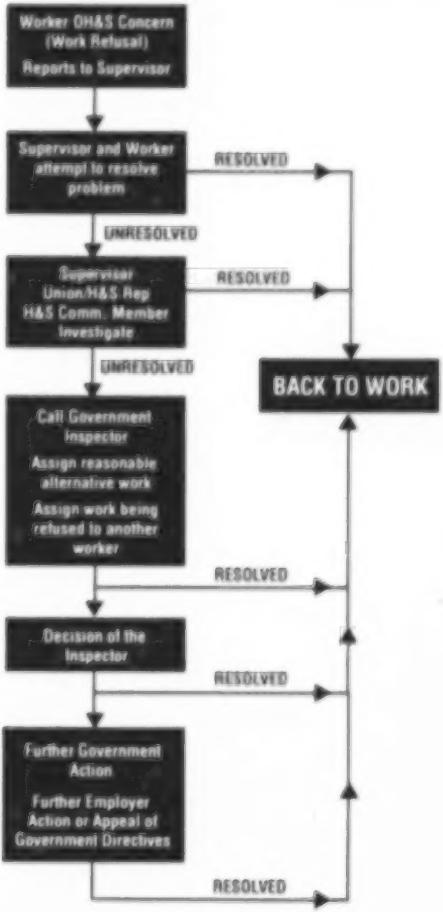
ii) You, your supervisor, and a JHSC member or employee representative will investigate.

iii) You return to work if the problem is resolved.

iv) If the problem is not resolved, a government health and safety representative is called.

v) Your supervisor may assign you reasonable alternative work.

vi) The inspector will investigate the situation and give a decision.



Work Refusal Flow Chart

Work Stoppage

Work stoppage legislation applies to Ontario only. Certified members of the Health and Safety Committee may direct the employer to stop work if all of the following three conditions exist:

i) Health and safety legislation is being violated.

ii) The violation poses a danger or a hazard to employees.

iii) Any delay in controlling the danger or hazard may seriously endanger an employee.

Ask your Health and Safety Committee for detailed procedures for work stoppage.

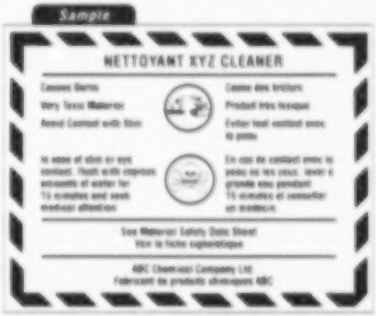
3. Workplace Hazardous Materials Information System (WHMIS)

WHMIS (Pronounced whimiss)

WHMIS applies to all Canadian workplaces. It requires that all workers who work with or near a hazardous substance (controlled product) be informed about its potential hazards and recommended safe work practices.

WHMIS requires that information be provided in three ways:

1. All controlled products used in the workplace must have a WHMIS label on the container.
2. Material Safety Data Sheets (MSDS) and hazard information must be readily available in the workplace. A MSDS summarizes the health and safety information about the product.
3. Workers must receive training to be able to recognize and work safely with chemicals.



Sample WHMIS Label

The HAZARD SYMBOL is an important part of the WHMIS label. It warns the user that a particular hazard exists. Actual hazards from toxic substances depend on the amount (level and duration) of exposure. A brief exposure at high levels may result in chemical poisoning within hours. Prolonged exposure at low levels may cause illness after several years.

WHMIS SYMBOLS AND CLASSES

CLASS A **Compressed Gas**	Contents under high pressure. Cylinder may explode or burst when heated, dropped or damaged.
CLASS B **Flammable and Combustible Material**	May catch fire when exposed to heat, spark or flame. May burst into flames.
CLASS C **Oxidizing Material**	May cause fire or explosion when in contact with wood, fuels and other combustible material.
CLASS D, Division 1 **Poisonous and Infectious Material:** ***immediate and serious toxic effects***	Poisonous substance. A single exposure may be fatal or cause serious or permanent damage to health.
CLASS D, Division 2 **Poisonous and Infectious Material:** ***other toxic effects***	Poisonous substance, may cause irritation. Repeated exposure may cause cancer, birth defects, or other permanent damage.
CLASS D, Division 3 **Poisonous and Infectious Material:** ***biohazardous infectious material***	May cause disease or serious illness. Drastic exposures may result in death.
CLASS E **Corrosive Material**	Can cause burns to eyes, skin or respiratory system.
CLASS F **Dangerously Reactive Material**	May react violently causing explosion, fire or release of toxic gases, when exposed to light, heat, vibration or extreme temperatures.

4. Material Safety Data Sheets (MSDS)

Material Safety Data Sheets (MSDS) provide health, safety and handling information. Manufacturers are required to produce an MSDS for their products particularly for hazardous products. An MSDS provides the following information: (ANSI Z400.1-1993 Standard)

Section 1. Product and company identification

Section 2. Composition/information on ingredients

Section 3. Hazards identification

Section 4. First aid measures

Section 5. Fire fighting measures

Section 6. Accidental release measures

Section 7. Handling and storage

Section 8. Exposure controls/personal protection

Section 9. Physical and chemical properties

Section 10. Stability and reactivity

Section 11. Toxicological information

Section 12. Ecological information

Section 13. Disposal considerations

Section 14. Transport information

Section 15. Regulatory information

Section 16. Other information

5. Public Health Promotion Legislation

This legislation is to ensure the well being of all occupants of the school building and to prevent spread of disease. The act sets standards for sanitation and cleanliness. Washrooms, kitchens, eating areas, water quality and infectious diseases are high priority items.

Authority

The Public Health Promotion Act is enforced by the public health department.

6. Fire Code

The fire code establishes fire safety rules. The main components of the Fire Code applicable to schools include:

a) building design criteria for fire prevention and fire protection,

b) guidelines for the maintenance of the building facilities and fire protection/prevention systems,

c) procedures for evacuation in case of fire, and

d) procedures for fire drill.

The local fire departments also provide fire safety education and training. Standard procedures for school activities must be in compliance with fire code.

Authority

The Fire Code is enforced by the local fire department.

7. Building Code

The Building Code sets standards and guidelines for buildings, structures, facilities and systems. Heating, ventilation, storage facilities, renovations, and maintenance are all covered under building code.

Authority

The building code is enforced by the provinces and the township.

8. Environmental Protection Legislation

The purpose of the environmental protection legislation is to prevent deterioration of the environment. Its relevance to schools is to ensure that the school activities and the substances released from the school activities do not deteriorate the environment. The act specifies procedures for the storage, use and disposal of substances whose uncontrolled release can adversely affect the environment. Schools must be registered as waste generators and waste disposal must be done in compliance with the legislation.

Authority

The governmental environmental agencies in your jurisdiction enforce the Environmental Proctection Legislation.

9. US OH&S Legislation

General Outline

In the United States (US) the Occupational Safety and Health Act is popularly known as OSHAct. The Occupational Health and Safety Administration (OSHA) is responsible for administering the OSHAct.

The OSHAct ***does not*** cover the following four categories of people:

- self-employed persons
- farms which employ only immediate family members of the farm employer
- employees covered by other legislation
- state and local government employees

OSHA regulations are published in Title 29 of the Code of Federal Regulations as:

- 29 CFR Part 1910— Occupational Safety and Health Standards
- 29 CFR Part 1926—Construction Standards

These standards define exposure limits, exposure monitoring methods, medical surveillance and protective measures.

Duties of Employers

The OSHAct sets out two main duties for employers:

- Employers must provide a workplace which is free from hazards that are known to cause or likely to cause death or serious physical harm to employees.
- Employers must comply with occupational safety and health standards under the Act.

Duties of Employees

Employees must comply with occupational safety and health standards, rules, regulations and orders which are applicable to their own conduct and actions.

Key Provisions

Some of the key provisions of the OSHAct are to:

- assure, insofar as possible, that every employee has safe and healthy working conditions
- require employers to maintain accurate records of exposures to potentially toxic materials or harmful physical agents and inform employees of the monitoring results
- provide for employee walk-around or interview of employees during the inspection process
- provide procedures for investigating alleged violations, at the request of any employee or employee representative issuing citations and assessing monetary penalties against the employer

Hazard Communication

The intent of the OSHA Hazard Communication Standard is to provide employees with information and training about the potential health hazards from exposure to workplace chemicals. The Standard requires that employee training include:

- explanations of the requirements of the standard;
- identification of workplace operations where hazardous chemicals are present;
- knowledge of the methods and observations used to detect the presence of hazardous workplace chemicals;
- assessment of the physical and health hazards of those chemicals
- warnings about hazards associated with chemicals in unlabelled pipes;

- descriptions of hazards associated with non-routine tasks;
- details about the measures employees can take to protect themselves against these hazards, including specific procedures;
- explanation of the labelling system;
- instructions on location and use of material safety data sheets (MSDSs);
- details on the availability and location of the hazardous materials inventory, MSDSs, and other written hazard communication material.

Hazard Warning and Symbols

Chemicals produced in the USA come under OSHA Hazard Communication Standard. The label on the container must warn about potential hazards of the product. OSHA does not require hazard symbols on the label, however, the skull and crossbones symbol is acceptable on containers of highly toxic substances and the flame symbol is acceptable on containers of flammable substances.

Section XIV

Information Sources

1. Canadian Government Departments with Responsibility for Occupational Health and Safety
2. US Federal Safety and Health Agencies
3. State Occupational Safety and Health Plans

1. Canadian Government Departments Responsible for Occupational Health and Safety

Canadian Centre for Occupational Health and Safety (CCOHS)

Client Services
Phone: 905-570-8094
Toll-free: 1-800-668-4284 (Canada and US only)
Fax: 905-572-2206
E-mail: clientservices@ccohs.ca
Web Site: www.ccohs.ca

Inquiries Service
(FREE answers to your OH&S questions)
Phone: 905-572-4400
Toll-free: 1-800-263-8466 (Canada only)
Fax: 905-572-4500
E-mail: inquiries@ccohs.ca
OSH Answers Web Site: www.ccohs.ca/oshanswers

Federal Jurisdiction

Labour Program
Human Resources Development Canada
Ottawa ON K1A 0J2
General information on federal programs, services and initiatives:
Toll-free: 1-800-O-Canada (1-800-622-6232)

Regional and District Offices
www.hrdc-drhc.gc.ca/menu/profile-search.shtml
Web Site: www.hrdc-drhc.gc.ca/common/workplace.shtml

Provincial Jurisdictions

Alberta

Workplace Health and Safety
Alberta Human Resources and Employment
9940-106 Street
Edmonton, AB T5K 2N2
General Inquiries: (780) 415-8690
Toll-free: 1-866-415-8690
Fax: (780) 422-3730
E-mail: whs@gov.ab.ca
Web Site: www.gov.ab.ca/hre/whs/

British Columbia

Workers' Compensation Board of British Columbia
6951 Westminster Highway (Richmond, BC)
PO Box 5350 Stn Terminal
Vancouver, BC V6B 5L5

Workplace Safety and Health Inquiries
Phone: (604) 276-3100
Toll-free in B.C.: 1-888-621-7233 (SAFE)

Health and Safety Emergency Accident Reporting
Toll-free in B.C.: 1-888-621-7233 (SAFE)
After hours: 1-866-922-4357
Web Site: www.worksafebc.com

Manitoba

Workplace Safety and Health Division
Manitoba Labour and Immigration
200-401 York Avenue
Winnipeg, MB R3C 0P8
General Inquiries: (204) 945-3446
Toll free in Manitoba: 1-800-282-8069
After hours: (204) 945-0581
Fax: (204) 945-4556
Web Site: www.gov.mb.ca/labour/safety/

New Brunswick

Workplace Health, Safety and Compensation Commission of New Brunswick

500 Beaverbrook Court
Fredericton, NB E3B 5X4
General Inquiries: (506) 453-2467
Toll-free in NB: 1-800-442-9776
E-mail: prevention@whsccnb.ca
Fax: (506) 453-7982
Web Site: www.whscc.nb.ca/

Newfoundland and Labrador

Department of Labour

Confederation Building, 4th Floor, West Block
PO Box 8700
St. John's, NL A1B 4J6
General Inquiries: (709) 729-7420
Toll-free in NL: 1-800-563-5471
Fax: (709) 729-3445
Web Site: www.gov.nf.ca/labour/

Northwest Territories and Nunavut

Workers' Compensation Board of Northwest Territories and Nunavut

PO Box 8888
Yellowknife, NT X1A 2R3
General Inquiries: (867) 920-3888
Toll free: 1-800-661-0792
Fax: (867) 873-4596
E-mail: yellowknife@wcb.nt.ca
Web Site: www.wcb.nt.ca/home.htm

Iqaluit
PO Box 669
Iqaluit, NU X0A 0H0
Phone: (867) 979-8500
Fax: 1-800-877-404-4407
E-mail: iqaluit@wcb.nt.ca
Web Site: www.wcb.nt.ca/home.html

Nova Scotia

Nova Scotia Department of Environment and Labour
Occupational Health and Safety Division
5151 Terminal Rd., 6th Floor
PO Box 697
Halifax, NS B3J 2T8
General Inquiries: (902) 424-5400
Toll free in NS: 1-800-952-2687
Fax: (902) 424-5640
E-mail: labrohs@gov.ns.ca
Web Site: http://www.gov.ns.ca/enla/ohs/

Ontario

Ministry of Labour
Occupational Health and Safety Branch
655 Bay Street, 14th Floor
Toronto, ON M7A 1T7
General Inquiries: (416) 326-7770
Toll free in Ontario: 1-800-268-8013
Fax: 416-326-7761
E-mail: webohs@mol.gov.on.ca
Web Site: www.gov.on.ca/lab/ohs

Prince Edward Island

Workers' Compensation Board of PEI
Occupational Health and Safety Division
PO Box 757, 14 Weymouth Street
Charlottetown, PE C1A 7L7
General Inquiries: (902) 368-5680
Toll-free in PEI: 1-800-237-5049
Fax: (902) 368-5696
Web Site: www.wcb.pe.ca

Québec

Commission de la santé et de la sécurité du travail du Québec (CSST) (Occupational Health & Safety Commission)
CP 6056, Succursale Centre-ville
Montréal, PQ H3C 4E1
Phone: (514) 906-3060
Toll-free in PQ: 1-800-667-7585
Fax: (514) 906-3062
Web Site: www.csst.qc.ca

Saskatchewan

Saskatchewan Labour
Occupational Health and Safety Division
1870 Albert Street
Regina, SK S4P 3V7
Toll-free in SK: 1-800-567-7233
Fax: (306) 787-2208
E-mail: webmaster@lab.gov.sk.ca
Web Site: www.labour.gov.sk.ca/

Saskatoon Office:
Phone: (306) 933-5042
Toll-free: 1-800-667-5023
Fax: (306) 933-7339

Yukon Territory

Yukon Workers' Compensation
Health and Safety Board
401 Strickland Street
Whitehorse, YT Y1A 5N8
General Inquiries: (867) 667-5645
Toll free in the Yukon: 1-800-661-0443
Fax: (867) 393-6279
E-mail: worksafe@gov.yk.ca
24-hour Emergency Line for Reporting Serious Workplace Accidents and Injuries: (867) 667-5450
Web Site: www.wcb.yk.ca

For an up-to-date listing of information sources visit
http://www.ccohs.ca/oshanswers/information/govt.html

3. US Federal Safety and Health Agencies

US Environmental Protection Agency (EPA)

Ariel Rios Building
1200 Pennsylvania Avenue NW,
Mail Code 3213A
Washington, DC 20460
Phone: (202) 272-0167
Web Site: www.epa.gov

National Institute for Occupational Safety and Health (NIOSH)

4676 Columbia Parkway, Mail Stop C-13
Cincinnati, OH 45226-1998
Toll-free in the US: 1-800-35-NIOSH
(1-800-356-4674)
Outside the US: (513) 533-8328
E-mail: eidtechinfo@cdc.gov
Web Site: www.cdc.gov/NIOSH/homepage.html

Occupational Safety & Health Administration (OSHA)

200 Constitution Ave., NW
Washington, DC 20210
Phone: (202) 693-2000
Toll free Emergency Reporting: 1-800-321-OSHA (6742)
Web Site: www.osha.gov

A listing of the Regional Offices follows:

OSHA Regional Offices

Region 1: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont, US Dept. of Labor – OSHA

JFK Federal Building, Room E340
Boston, MA 02203
Phone: (617) 565-9860
Fax: (617) 565-9827
Web Site: www.osha.gov/oshdir/r01.html

Region 2: New Jersey, New York, and Puerto Rico, Virgin Islands, USA Dept. of Labor – OSHA

201 Varick St., Rm. 670
New York, NY 10014
Phone: (212) 337-2378
Fax: (212) 337-2371
Web Site: www.osha.gov/oshdir/r02.html

Region 3: District of Columbia, Delaware, Maryland, Pennsylvania, Virginia and West Virginia, USA Dept. of Labor – OSHA

The Curtis Center, Suite 740 West
170 S. Independence Mall West
Philadelphia, PA 19106-3309
Phone: (215) 861-4900
Fax: (215) 861-4904
Web Site: www.osha.gov/oshdir/r03.html

Region 4: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee, USA Dept. of Labor – OSHA

61 Forsyth St. SW
Atlanta, Georgia 30303
Phone: (404) 562-2300
Fax: (404) 562-2295
Web Site: www.osha.vog/oshdir/r04.html

Region 5: Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin, USA Dept. of Labor – OSHA

230 South Dearborn St., Rm. 3244
Chicago, IL 60604
Phone: (312) 353-2220
Fax: (312) 353-7774
Web Site: www.osha.gov/oshdir/r05.html

Region 6: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas, USA Dept. of Labor – OSHA

525 Griffin St., Rm. 602
Dallas, TX 75202
Phone: (214) 767-4731
Fax: (214) 767-4693
Web Site: www.osha.gov/oshdir/r06.html

Region 7: Iowa, Kansas, Missouri, and Nebraska, USA Dept. of Labor – OSHA

City Center Square
1100 Main St., Suite 800
Kansas City, MO 64105
Phone: (816) 426-5861
Fax: (816) 426-2750
Web Site: www.osha.gov/oshdir/r07.html

Region 8: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming, USA Dept. of Labor – OSHA

1999 Broadway, Suite 1690
PO Box 46550
Denver, CO 80202-6550
Phone: (303) 844-1600
Fax: (303) 844-1616
Web Site: www.osha.gov/oshdir/r08.html

Region 9: Samoa, Arizona, California, Guam, Hawaii, Nevada, and Trust Territory of the Pacific Islands, USA Dept. of Labor – OSHA

71 Stevenson Street St.
4th Floor, Suite 420
San Francisco, CA 94105
Phone: (415) 975-4310
Fax: (415) 975-4319
Web Site: www.osha.gov/oshdir/r09.html

Region 10: Alaska, Idaho, Oregon, Washington, USA Dept. of Labor – OSHA

1111 Third Avenue, Suite 715
Seattle, Washington 98101-3212
Phone: (206) 553-5930
Fax: (206) 553-6499
Web Site: www.osha.gov/oshdir/r10.html

3. State Occupational Safety and Health Plans

Alaska

Alaska Department of Labor and Workforce Development
P.O. Box 21149
Juneau, Alaska 99801-1149
Physical location:
1111 W. 8th Street, Room 304
Juneau, Alaska 99801-1149
Phone: (907) 269-4955
Toll-free: 1-800-770-4940
Fax: (907) 269-4950
Web Site: www.labor.state.ak.us/lss/home.htm

Arizona

Industrial Commission of Arizona
800 W. Washington
Phoenix, Arizona 85007-2922
Phone: (602) 542-5795
Fax: (602) 542-1614
Web Site: www.ica.state.az.us/ADOSH/oshatop.htm

California

California Department of Industrial Relations
455 Golden Gate Avenue - 10th Floor
San Francisco, California 94102
Phone: (415) 703-5050
toll-free: 1-800-963-9424
Fax: (415) 703-5114
Web Site: www.dir.ca.gov/occupational_safety.html

Connecticut

Connecticut Department of Labor
Consultation Services
Division of Occupational Safety and Health
38 Wolcott Hill Road
Wethersfield, Connecticut 06109
Phone: (860) 566-4550
Fax: (860) 566-6916
Web Site: www.ctdol.state.ct.us/osha/osha.htm

Hawaii

Hawaii Department of Labor and Industrial Relations
Consultation and Training Branch
830 Punchbowl Street, Room 423
Honolulu, Hawaii 96813
Phone: (808) 586-9100
Fax: (808) 586-9104
Web Site: www.hiosh.hawaii.gov

Indiana

Indiana Department of Labor
Indiana Government Center – South
402 W. Washington Sreet, Room W195
Indianapolis, Indiana 46204
Phone: (317) 232-2655
Fax: (317) 232-3790
Web Site: http://www.state.in.gov/labor

Iowa

Iowa Division of Labor Services
Occupational Safety and Health
1000 E. Grand Avenue
Des Moines, Iowa 50319-0209
Phone:(515) 281-7629 Consultation
Phone:(515) 281-0202 Education
Fax: (515) 281-5522
Web Site: www.state.ia.us/iwd/labor/index.html

Kentucky

Kentucky Labor Cabinet
1047 U.S. Highway 127 South, Suite 4
Frankfort, Kentucky 40601

OSH Division of Compliance
Phone: (502) 564-3070 ext 266
Fax: (502) 564-4769

OSH Division of Education and Training
Phone: (502) 564-3070
Fax: (502) 564-4769
Web Site: www.labor.ky.gov/osh/index.htm

Maryland

Maryland Department of Labor, Licensing and Regulation
1100 North Eutaw Street, Room 613
Baltimore, Maryland 21201-2206
Maryland Occupational Safety & Health (MOSH)
Phone: (410) 767-2215
Fax: (410) 333-7747
Web Site: http://www.dllr.state.md.us/labor/mosh.html

Michigan

Michigan Department of Consumer and Industry Services, Bureau of Safety and Regulation
7150 Harris Drive
P.O. Box 30643
Lansing, Michigan 48909-8143
Phone: (517) 322-1814
Fax: (517) 322-1775
Web Site: www.michigan.gov/cis/0,1607,7-154-11407---,00.html

Minnesota

Minnesota Department of Labor and Industry
443 Lafayette Road North
St. Paul, Minnesota 55155-4311
Phone: (651) 284-5060
Fax: (651) 284-5781
Web Site: www.doli.state.mn.us/wsc.html

Nevada

Nevada Division of Industrial Relations Occupational Safety and Health Enforcement
1301 N. Green Valley Parkway – Suite 200
Henderson, Nevada 89014
Phone: (702) 486-9020
Fax: (702) 990-0360
Web Site: dirweb.state.nv.us

New Jersey

New Jersey Department of Labor
Labor Standards and Safety Enforcement
Safety and Health
225 E. State Street
8th Floor West
P.O. Box 953
Trenton, New Jersey 08625-0953
Phone: (609) 292-3923
Fax: (609) 292-4409
Web Site: www.state.nj.us/labor/lsse/lspeosh.html

New Mexico

New Mexico Environment Department
Occupational Health and Safety Bureau
525 Camino de Los Marquez, Suite 3
PO Box 26110
Santa Fe, New Mexico 87502
Phone: (505) 827-4230
Fax: (505) 827-4422
Web Site: www.nmenv.state.nm.us/OHSB_website/ohsb_home.htm

New York

New York Department of Labor
Workplace Safety & Loss Prevention Program
Room 167 Bldg. 12 State Campus
Albany, New York 12240W
Phone: (518) 457-1125
Fax: (518) 485-1167
Web Site: www.labor.state.ny.us/business_ny/employer_responsibilities/safety/shdlists.htm

North Carolina

North Carolina Department of Labor
4 West Edenton Street
Raleigh, North Carolina 27601
Bureau of Consultative Services
Phone: (919) 807-2796
Fax: (919) 807-2902
Web Site: www.nclabor.com/osha/osh.html

Oregon

Oregon Occupational Safety and Health Division
Department of Consumer & Business Services
350 Winter Street, NE, Room 430
Salem, Oregon 97310-3882
Phone: (503) 378-3272
Toll-free in Oregon: (800) 922-2689
Web Site: www.orosha.org/

Puerto Rico

Puerto Rico Department of Labor and Human Resources
Occupational Safety and Health Office
Department of Labor and Human Resources
20th Floor
505 Muñoz Rivera Avenue
Hato Rey, Puerto Rico 00918
Phone: (787) 756-1100, 1106
Fax: (787) 767-6051
Web Site: www.osha.gov.fso/osp/PRstandards.html

South Carolina

South Carolina Department of Labor, Licensing and Regulation
Office of OSHA Compliance
3600 Forest Drive
PO Box 11329
Columbia, South Carolina 29211-1329
Phone: (803) 734-9595
Fax: (803) 734-9772
Web Site: www.llr.state.sc.us/osha.asp

Tennesse

Tennessee Department of Labor and Workforce Development
710 James Robertson Parkway, 3rd Floor
Nashville, Tennessee 37243-0659
Phone: (615) 741-2793
Toll-free: 1-800-249-8510
Fax: (615) 253-1623
Web Site: www.state.tn.us/labor-wfd/tosha.html

Utah

Labor Commission of Utah
160 East 300 South, PO Box 146650
Salt Lake City, Utah 84114
Phone: (801) 530-6901
Fax: (801) 530-6992
Web Site: www.uosh.utah.gov/

Vermont

Vermont Department of Labor and Industry
Occupational Safety & Health Administration
National Life Building, Drawer 20
National Life Drive
Montpelier, Vermont 05602-3401
Phone: (802) 828-2765
Fax: (802) 828-2195
Web Site: www.state.vt.us/labind/vosha.htm

Virginia

Virginia Department of Labor and Industry (VOSH)
Powers-Taylor Building
13 South 13th Street
Richmond, Virginia 23219
Phone: (804) 786-8707
Fax: (804) 371-6524
Web Site: doli.state.va.us/whatwedo/coop_prog/consultation.html

Virgin Islands

Virgin Islands Department of Labor
Division of Occupational Safety and Health
3021 Golden Rock
Christiansted, St. Croix, Virgin Island 00840
Phone: (340) 772-1315
Fax: (340) 772-4323

Washington

Washington Department of Labor and Industries
PO Box 44850
Olympia, Washington 98504-4850
Phone : (360) 902-5799
Fax: (360) 902-5792
Toll-free: 1-800-423-7233
Web Site: www.lni.wa.gov/wisha/

Wyoming

Wyoming Department of Employment
Occupational Health and Safety
1510 East Pershing Blvd., West Wing
Cheyenne, Wyoming 82002
Phone: (307) 777-7786
Fax: (307) 777-3646
Web Site: wydoe.state.wy.us/doe.asp?ID=7

Notes

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Other Products

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by CCOHS

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IPCS INCHEM*
IPCS INTOX*

References to oh&s books, journals, articles and reports

OSH References
OSHLINE with NIOSHTIC**
OSH Researcher
TOXLINE*

Regulatory Information

Canadian *enviro*OSH Legislation* Complete text, including graphics, of health, safety and environmental acts and regulations from all jurisdictions. Available as a national or regional collection including – National, Ontario, Eastern Canada, or Western Canada.

Canadian *enviro*OSH Legislation PLUS Standards* National collection of Canadian environmental, H&S Legislation *plus* the complete text of standards referenced in the legislation.

HRDC Labour Branch A collection of publications and databases from the federal jurisdiction.

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Groundskeepers Safety Guide for groundskeepers, landscape contractors and nursery workers

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Health and Safety Committees Reference Guide provides practical guidance for the formation and effective functioning of health and safety committees

Noise Control in Industry: A Basic Guide helps workers and employers recognize noise problems, take steps to control occupational noise exposure and develop a hearing conservation program

Wellness in the Workplace provides practical steps and program suggestions for workplace health and wellness programs. Create a wellness program or integrate one or more initiatives into your existing framework

Health and Safety Guide for Libraries will help you recognize, evaluate and control workplace hazards in libraries and other information centres

Emergency Response Planning Guide will assist in developing a comprehensive emergency response plan for any size of business

Mould in the Workplace – A Basic Guide includes information about moulds that workers may encounter in the workplace and tips for preventing health problems associated with exposure to mould

For more information about these titles

905-570-8094 or **1-800-668-4284**

Fax: 905-572-2206 E-mail: clientservices@ccohs.ca

Web Site: www.ccohs.ca

CCOHS...

Canada's national centre for occupational health and safety. We provide unbiased information, advice and training on how to prevent illness and injury in the workplace.

When you have a question about health or safety, remember to use these FREE services:

Confidential Inquiries Service

1-800-263-8466
905-572-4400
inquiries@ccohs.ca

OSH Answers on the Web

www.ccohs.ca/oshanswers

For more information about CCOHS products and services:

905-570-8094 or **1-800-668-4284**
Fax: 905-572-2206 E-mail: clientservices@ccohs.ca
Web Site: www.ccohs.ca

Canadian Centre for Occupational Health and Safety
135 Hunter Street East, Hamilton Ontario Canada L8N 1M5